

Exhibit 11

Drone Advisory Committee (DAC) July 21, 2017 Meeting Minutes

List of Attachments

- Attachment 1: Attendees
- Attachment 2: Agenda
- Attachment 3: Presentations

Summary

The July 21, 2017 DAC Meeting was a virtual meeting, with several members attending at RTCA headquarters, 1150 18th Street, NW, Suite 910, Washington, DC 20036. The DAC received presentations from two Task Groups (TGs): TG1 – Roles and Responsibilities and TG3 – Unmanned Aircraft Systems (UAS) Funding. TG2 – Access to Airspace – did not present at this meeting. The co-chairs of TG3 presented a summary report of TG3's interim recommendations, including the background of the tasking statement as well as the guiding principles, methodology, and workflow used to develop the interim recommendations. TG3 leadership also outlined the next steps for refining the interim report into the final report to be delivered in November. The DAC also heard from TG1 on the status of evaluating State or local government interests that could form the basis for recommendations to the DAC for future Federal Aviation Administration (FAA) action. These actions are related to the relative role of State and local governments in regulating aspects of low-altitude UAS operations. The meeting discussions are summarized below.

Designated Federal Officer Statement

Dan Elwell, Deputy Administrator and Chief NextGen Officer, FAA

The Designated Federal Officer (DFO) statement was read by FAA Deputy Administrator Dan Elwell at 11:02 AM.

Chairman's Remarks

Brian Krzanich, CEO, Intel

DAC Chairman Brian Krzanich welcomed everyone to the virtual meeting and expressed his hope that the virtual meeting format would not be a hindrance to communications. He thanked the out-going DFO, Victoria Wassmer, for her service and welcomed incoming DFO Dan Elwell to the DAC. He then

thanked the rest of the FAA executive team for their guidance and assistance to the DAC Subcommittee (DACSC) and TGs, and finally he thanked the TGs and DACSC for their progress to-date.

Chairman Krzanich briefly recounted the events that led to the virtual DAC meeting, starting with the January 31, 2017 DAC meeting held in Reno, Nevada, where the TG1 and TG2 tasking statements were approved by the DAC. Since TG3 received their tasking statement after the January 31, 2017 DAC Meeting, this supplementary July Meeting was added (after the already-scheduled May 3, 2017 DAC Meeting) to the schedule to give them more time to prepare their input for the DAC. Chairman Krzanich said the DAC would hear updates from TG1 to make sure they are going in the “right direction,” in preparation for the November 8, 2017 DAC Meeting, and would hear from TG3. TG2 would report their recommendations in November. Chairman Krzanich reiterated that the virtual meeting was to ensure the November meeting would be as productive as possible. Note: RTCA provided instructions for participants on the virtual call to be recognized by Chairman Krzanich.

Approval of Minutes from Previous Meeting

The minutes of the previous meeting were unanimously approved as distributed.

RTCA Remarks

Margaret Jenny, President, RTCA, Inc.

Margaret Jenny introduced the incoming DFO, Dan Elwell. Mr. Elwell was with the FAA under the Bush Administration from 2006-2008 as the Assistant Administrator for Policy and Environment. After that, he was in Vice President positions at the Aerospace Industries Association (AIA) and Airlines for America (A4A). He has over 6,000 hours as a military and commercial airline pilot, with over 20 years of flying experience. He also served as a legislative fellow for the late Senator Ted Stevens (R-Alaska). Most recently, he served as Secretary Chao’s (DOT) Senior Advisor on Aviation. He was sworn in as the Deputy Administrator on June 26, 2017, and is the new DAC DFO.

FAA Remarks

Dan Elwell, Deputy Administrator and Chief NextGen Officer, FAA

Mr. Elwell thanked Ms. Jenny for the introduction. He stated that he knows many of the committee members. He echoed Chairman Krzanich’s thanks to Victoria Wassmer for her service as the FAA’s Acting Deputy Administrator and previous DAC DFO. Mr. Elwell thanked Ms. Wassmer, Ms. Jenny, and those who have dedicated their time and energy to the DAC. He stressed that his previous work with the FAA and other organizations has highlighted the importance of listening. He indicated his eagerness to hear about the work of the TGs during the meeting and noted the recommendations being developed by the DAC will be an important factor in the unmanned aircraft policies that the FAA will institute, and

that the importance of the work being done by the DAC cannot be overstated. The FAA will build on the DAC's work presently being done and the work to be done in the future. Mr. Elwell mentioned that the Aviation Rulemaking Committee (ARC) for identification and tracking of drones during flight met for the first time on June 21, 2017. This ARC has formed three working groups: 1) existing and emerging technologies, 2) security and law enforcement, and 3) implementation. The FAA expects to receive recommendations from the ARC by September 30, 2017. The FAA has also signed a charter for an additional ARC that will help prioritize activities to integrate drones successfully into controlled airspace. These actions come as Congress, in both the House and Senate chambers, considers legislation that addresses unmanned aircraft. This underscores the importance and timeliness of the work being done by the DAC and the ARC, which has implications at the very basic levels of government and even at the constitutional level (interpretively).

TG3 – UAS Funding Report Out

Mark Aitken, Director of Government Relations, AUVSI, and Howard Kass, Vice President of Regulatory Affairs, American Airlines

Chairman Krzanich thanked Mr. Elwell for his remarks and invited the leadership of TG3 to make their presentation. Co-Chair Mark Aitken began by thanking the DAC for the opportunity to report their interim (near-term) recommendations for UAS Funding. Because the team briefed at the last DAC meeting, it was expected that today's presentation would go quickly. The second phase of the task will be focused on longer-term funding activities.

Mr. Aitken presented TG3 assumptions and guiding principles:

- 1) There will be a combination of government, industry, and shared funding across the integration efforts.
- 2) Options for funding should not be constrained by the current traditional aviation funding structure, although in the near-term, a new model may be difficult to implement.
- 3) The recommended funding structure should not alter the current structure of funding for traditional, manned aviation.

TG3 used "Decision Lens" to rank all FAA UAS activities against a common set of criteria. The key take-away is the criteria that were decided upon by the team. The top criteria were safety among UAS operators, for people and property on the ground, followed by enabling UAS operations, and finally, economic benefits.

The team examined activities that the FAA conducts to integrate UAS into the airspace safely. TG3 was challenged by having to look across many lines of business within the FAA for their work. The prioritization exercise did not result in a large difference among ranked priorities. This led the group to

believe that all priorities are (relatively) of equal importance in achieving the goal of safe UAS integration.

TG3 reported that they had divided the group into teams that considered their prioritized results to define the short-term government, industry, and collaborative efforts to fund these activities, and then provided written (draft) recommendations. The reports were circulated and discussed, and consensus was reached on the recommendations. The groups also considered the following recommendations from TG2 to ensure there was common guidance across all three TGs:

- Prioritization of UAS beyond visual line of sight (BVLOS) operations within the Mode C Veil below 400 feet above ground level (AGL).
- Development of technology neutral navigation performance requirements.
- Evaluation of the ability of existing networks to meet low altitude UAS Command and Control requirements.
- Establishment of a 14 Code of Federal Regulations (CFR) part 135 regulatory pathfinder program for commercial UAS low-altitude BVLOS operations.
- Recommendations for a timeframe beyond 24-months.

TG3s interim recommendations, as reported, are:

- All regulations, policies, and standards necessary in the next 24 months should be developed primarily by the FAA with significant industry input. Congress should appropriate additional funding and increase FAA staffing to address this ambitious work schedule.
- The research and development, and system development necessary in the next 24 months, should be shared between government and industry.
- Communications, outreach, and training necessary in the next 24 months should be shared between government and industry, depending on the activity.
- Any recommended funding structure should not alter the current structure of funding for traditional, manned aviation.
- In the future, the UAS industry may be expected to pay for the operation, maintenance, and modernization of an automated Unmanned Traffic Management (UTM) system through a yet-to-be-created “pay-for-what-you-use” funding model.

Co-Chair Howard Kass stated that the regulatory framework is already underway to enable the commercialization of drone operations. Several ARCs have been established, and the FAA has held several meetings with other government agencies on the topic of UAS integration. These inter-agency meetings have included counter-drone discussions.

Mr. Kass noted that the FAA would normally carry the burden of cost for development of the policies and standards for drones, but the team believes that industry has a role to play in helping to pay for this activity. He observed that exciting work is underway in systems engineering and research and development (R&D). The industry has considerable experience conducting R&D and many activities can

be leveraged from these efforts (e.g., infrastructure build-out). The government track record in R&D is inadequate and so this may be an area where industry and government can collaborate, with industry leading the activities necessary to implement technology for the integration of UAS.

Outreach and training is an area where the FAA and industry both have extensive experience. As such, both government and industry will both have a role to play in paying for the outreach and education of their traditional constituents.

Mr. Kass acknowledged the efforts of Congress to aid in funding FAA activities in the Fiscal Year (FY) 2017 FAA Reauthorization Bill. There is concern that an FAA reauthorization bill will not be approved and enacted before the end of September 30, 2017.

Mr. Kass then described the future activities for TG3. At the May 3, 2017 DAC Meeting, the DAC instructed TG3 to divide its activities into near-term (24-month horizon) and long-term (5-year horizon). The long-term questions are more complicated, such as cost accounting measures. TG3 will consider options and identify self-sustaining and scalable funding sources. They will consider both government and industry funding sources. Further, they will work to identify a funding option for the UAS industry that is segregated from the mechanisms that funds manned aviation (it could be similar in structure, but they won't cross-pollinate). TG3 is cognizant of the possibility of far-reaching structural and governance changes that could affect the funding for UAS integration. The group will consider new sources of funding for the long term, including user fees, taxes, and/or similar pay-for-what-you-use services. Lastly, Mr. Kass reported that on July 14, 2017, the TG3 had a "listening session" to discuss long-term issues. It was open to the entire DACSC for as many options and voices to be expressed and heard. A priority issue that surfaced in addition to funding, was that the structure of the FAA will have an impact on the integration of UAS into the National Airspace System.

Ms. Jenny offered specific thanks to FAA's Aviation Policy and Plans Executive Director Nan Shellabarger for extraordinary assistance in educating and assisting TG3 on how the FAA budget works, as well as the intricacies of fees and taxes. The co-chairs agreed wholeheartedly with that recognition and offered their thanks as well.

Question: Did the team think about establishing a UAS Trust Fund similar to the Airport and Airways Trust fund?

Response: That will be addressed in the long-term focus work that will be tackled next, but has been mentioned in past discussions.

Question: It appears that the team is looking at the manned aviation funding and recommending changes to that mechanism as opposed to developing a whole new one. With Air Traffic Control

privatization efforts underway in Congress, has the team considered how its recommendations might be altered if privatization becomes reality?

Response: The team was very sensitive to possible structural change within the FAA. They intend to keep that possibility as a “reality” that any ideas must be weighed against. Given the uncertainty of the effort, nothing could be recommended against it.

Question: What are the team’s thoughts on the manned aviation funding mechanism of today and trying to have an effective change on those? Is that where we’re heading versus just concentrating on how the initiative for integration of UAS are going to be funded and leave the manned funding alone right now?

Response: The team’s focus is looking at the unmanned space.

Question: The concept of “pay as you go”, assumes there is a service to which an operator must be connected. If you break funding into: what is required to operate automated systems below 400 feet; no interoperability with manned aviation; what policy making, governance, and auditing is required to be in place; when interoperability is required between manned and unmanned aviation, that requires funding on FAA side. Decouple funding from architecture discussion. Industry may be better suited to introduce other architectures that are cheaper, more quickly.

Response: These comments align with why TG2 was consulted – fee for service models will be dictated by available services and those required to operate (i.e., command and control communications services). Additionally, scalability of operations plays an important part. Part 107 is only the tip of the iceberg for what commercial operators would like to see implemented. It will be hard to justify paying for services that aren’t available or tie in to ATC services that are not allowed in the operational environment. As we get a better understanding for what’s on the immediate regulatory horizon, it will help frame what should be pursued for funding.

Comment: Clarify: funding should be driven by the technology capabilities and the scenarios rather than what funding looks like in today’s system. The concept of segregation and integration should be understood that many DAC members believe in deeply integrating one set of standards for everyone in the air. The concept of separation of these activities is not a good idea. We may need tasking statement clarifications or high-level tenets to ensure this is maintained.

Response: As the team looks to all sizes of UAS, leading to full integration will help to inform the work stream (along the 5-year mark). The work done by TG2 will inform the work of TG3.

Comment: There was a reference to operations below 400 feet with no interaction with manned aircraft – helicopters operate below 400 feet routinely and will need the interaction.

Comment: Chairman Krzanich complimented the team on a great job and great progress, and is looking forward to the discussion in November.

TG1 – Roles and Responsibilities Report Out

Brendan Schulman, Vice President of Policy and Legal Affairs, DJI Technology and Dr. John Eagerton, Chief, Aeronautics Bureau, Alabama Department of Transportation/National Association of State Aviation Officials (NASAO)

Chairman Krzanich called upon TG1 to provide a status update on their efforts. Co-Chair Brendan Schulman apologized on behalf of Co-Chair Dr. John Eagerton who was unable to attend the meeting due to a prior commitment. Mr. Schulman led the presentation for TG1 and briefed the DAC members on the history of the tasking statement and progress made since the May 3, 2017 DAC meeting. Since May, the team has incorporated guidance received from the DAC, namely, to set aside work on enforcement for now and focus more on roles and responsibilities task item. He reported that RTCA has added new member and observer participants (local/state government). The TG has conducted three days of in-person TG meetings (May 25 and July 10-11) and a conference call (June 14), and held extensive discussions on governing models (local, State, or Federal) based on altitude. Observing the number of public observers at this meeting, Mr. Schulman invited new members to join to help work on the TG's interesting and complex work.

Specific actions taken to inform the issues being worked included development of a "matrix" of existing roles and responsibilities ("This is a creative exercise – don't look at what exists today but on creative solutions that may not resemble today's reality."), fact gathering from two additional law enforcement subject matter experts, and an altitude drone flight observations "field trip."

TG1 continues to work towards developing consensus recommendations against their tasking. The discussion is spirited and thoughtful. The group's timeline will proceed with urgency, and work to deliver initial recommendations by the November 8, 2017 DAC Meeting, with further guidance from the FAA and DAC as to what is most useful.

Question: There was discussion at the last DAC meeting introduced by the local government representative, Mayor Lee, about a local representative's feelings that they were not being heard in the TG1 discussions. Have you worked with the mayor to develop a process to collect their comments?

Response: Mayor Lee's representative has been added to the TG. There are also efforts to reach out to the National League of Cities (NLC). When we started the DAC, it was very important to not meet just 3 or 4 times a year, but that there should be interaction and discussions outside of the DAC meetings (through subcommittee and TG meetings) and that has been taking place.

Question: American Legislative Executive Council – State Legislators discuss local issues. Which national state organization might exist that might be consulted? State legislators represent a great educational opportunity.

Response: We have engaged the National Conference of State Legislatures (NCSL), the National Association of Counties (NACo), and have a member of the Rhode Island legislature on the TG. Also, NASAO is represented as the co-chair on the TG.

Comment: The DFO requested information on who existed on the TG and who was added.

Response: RTCA took the action to provide the roster and history of the membership of TG1.

Comment: A member observed he is currently at the NACo convention and is participating in a MITRE effort to coordinate and educate NACo members.

Responses: RTCA clarified that this is not an RCTA initiative and we have received no feedback on this or a similar initiative by MITRE, MIT, and FAA at the Miami Beach, FL U.S. Conference of Mayors (USCM) annual meeting.

Response: Mr. Schulman mentioned he will be on a panel at the NCSL Legislative Summit in Boston, MA.

Comment from a representative of Mayor Lee: Mayor Lee was unable to participate in the virtual DAC meeting and sent a representative. The representative mentioned they were only observers on the TG. Mayor Lee wanted to reiterate his commitment to focus on local authority to make reasonable time/manner/place restrictions in low altitude airspace to ensure public safety. He remains concerned about privacy and ensuring broader input in the discussion from partners such as law enforcement agencies and other local government representatives. The desire is to have an equal, one-to-one representation of local government to industry members. The mayor introduced a resolution at the USCM Transportation and Communications Committee meeting that there are calls for State and local authority to regulate time/manner/place of drone operations within 200 feet of the ground. That resolution was approved by the USCM and was sent to Congress and the Administration as part of the USCM policy agenda. It received bipartisan support. He has encouraged fellow mayors to reach out and express their concerns so they can be passed on to the FAA.

Response: Ms. Jenny made a point of clarification that the mayor's representatives were added as members of the TG originally but were asked to be made observers only. She further went on to say that RTCA was very happy the mayor was undertaking an outreach and look forward to hearing from anyone who wished to become engaged. We have discussion in general about the difficulties securing resources to be involved that makes it difficult for cities to be actively engaged. We will be looking at

other innovative ways to get that input and how often and for how long the group meets. The mayor's office has given us good feedback which we are relaying to the TG leadership to accommodate that more balanced TG membership. This is a challenging work-in-progress.

Comment: The mayor is member of the DAC and is trying to engage other mayors, but the time commitment to take part in the TG is too great for most mayors. RTCA is encouraged to find additional mayors.

Response: RTCA has been in discussion with a few elected officials and also talking to associations that represent cities and mayors. It is good to have large cities represented (like Mayor Lee's), but to get the engagement, we may need to rely on mayors of smaller cities who may have more time available to support the DAC.

Any local or state government has been offered an opportunity to join. Sometimes associations (e.g., NLC or NCSL) can devote someone if the city or state cannot. Most associations have been offered a position but have declined. This TG has a variety of stakeholders that represent many disparate interests – manned, unmanned, airports, etc. Virtual meetings aid in allowing distant persons to attend.

After the conclusion of the TG1 discussion, the DAC revisited the TG3 presentation to accept the group's interim report formally. Chairman Krzanich called for any last comments on TG1's presentation, and there was none. He then called for additional comments and motion for acceptance of TG3 material. A motion to approve TG3's update was made and seconded, and was adopted with no objections.

New Business

A call for new business was made by Chairman Krzanich.

Question: Given the uncertainty with the 2018 FAA reauthorization, is it appropriate, and is there a need, for long-term funding, or to have someone advocate for the DAC to allow continued work in the future?

Response: To reword the question, as the legislation moves forward is there a placeholder in there for UAS? That would be considered as part of the TG3's work, and they will account for the FAA funding overall in the development of their recommendations.

In terms of a placeholder, in the House version of the FAA bill, there is a section asking for a report out on these types of funding issues. TG3 remains mindful of what is happening in the bills as they go forward.

Dates and Agenda (if known) for Next 2 Meetings

November 8, 2017: Seattle, WA.

Action Items

Action	Responsible Party	Schedule	Status
ACTIONS OPEN FROM PREVIOUS MEETING			
RTCA to summarize the comments received for each TG and submit for their review and consideration.	RTCA	ASAP	CLOSED
TG1 re-look at priority 4 (State and Local Interest In and Response to UAS) with more attention.	TG1	July	CLOSED
RTCA to help identify DAC members who wish to assist in addressing county and city conventions, and to assist in defining what output can be produced that will benefit the two conventions; and work with DAC member Mayor Lee's office and Robert Boyd to get on the agendas.	RTCA	On-Going	OPEN
RTCA to coordinate a webinar for SC-228 that can be reviewed by all DAC members.	RTCA & SC-228	ASAP	CLOSED
NEW ACTIONS			
RTCA to send a roster of the government attendees to the DFO including add-date.	RTCA	July	CLOSED

Closing Remarks

Chairman Krzanich expressed his thanks to the members for their preparation and participation. He believes that the committee is well-positioned for the November meeting.

Mr. Elwell also thanked the TGs for their time, hard work, and participation in the meeting. He expressed appreciation for the work being done on the country's behalf in this new technology. There are many activities involving UAS happening in Washington DC, and the FAA is providing assistance to Congress as the reauthorizations bills before them are worked. Between now and November 8, 2017, there may be new things to incorporate into the committee's work and the FAA looks forward to the next meeting and report of progress. On Administrator Huerta's behalf, he thanked all the members.

Ms. Jenny observed the extraordinary work of TG2, who although they did not report during this meeting, has submitted their final report to the DAC for review in November.

The meeting was adjourned at 12:35 PM EDT.

Attachments

Exhibit 12

Drone Advisory Committee (DAC) November 8, 2017 Meeting Minutes

List of Attachments

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Summary

The November 8, 2017 DAC meeting was hosted by Amazon at the Amazon Meeting Center in Seattle, WA. The DAC heard presentations from The MITRE Corporation and three Task Groups (TGs): TG1 - Roles and Responsibilities, TG2 - Access to Airspace, and TG3 - Unmanned Aircraft Systems (UAS) Funding. Michael Guterres of The MITRE Corporation presented the results of a local government outreach effort conducted by MITRE and Juan Alonzo, DAC member and Stanford University Professor. The outreach efforts gathered feedback from local government officials on the desired role of local governments in regulating low-altitude drone operations. MITRE conducted focus-group sessions on this topic at the annual conferences of the U.S. Conference of Mayors, and the National Association of Counties.

The Co-Chairs of TG1 presented a summary report of nine common principles developed by the TG. Of the nine principles presented, five gained group consensus. The language of the four remaining principles was disputed and as a result, two versions of the four non-consensus principles were presented. TG2 presented five final recommendations intended to guide future activities necessary to provide access to airspace for drones. With several small editorial changes suggested by the DAC, the Committee unanimously approved the recommendations for submission to the FAA. TG3 provided a summary of their work completed since their July 2017 interim report. They plan to present final recommendations to the DAC at its first meeting in 2018. The meeting discussions are summarized below.

All times noted below are Pacific Standard Time (PST).

Official Statement of the Designated Federal Officer Dan Elwell, Deputy Administrator and Chief NextGen Officer, FAA

The Designated Federal Officer (DFO) statement was read by FAA Deputy Administrator Dan Elwell at 9:02 AM.

DAC Chairman's Report Peter Cleveland, Vice President, Government and Policy, Intel Corporation

DAC Chairman Brian Krzanich was unable to attend the meeting. Mr. Peter Cleveland, Vice President, Government and Policy Group for Intel, led the meeting in his place. Mr. Cleveland welcomed everyone to the meeting and thanked Amazon (specifically Gur Kimchi, Sean Cassidy, Ben Gielow, and Naomi Duprey) for hosting the previous evening's event. He complimented Amazon on the meeting space and thanked them for hosting the committee. He noted that much has happened since July in the drone space. The wildfires and hurricanes over the past months demonstrated the usefulness of drones. Mr. Cleveland acknowledged the FAA for moving quickly to allow drone technology to be used, stating that the constructive approach of advising and partnering with the FAA leads to the best results. He commented that Dan (Elwell) is gaining experience in his new position and that he is appreciated. Mr. Cleveland noted that Ethan Klein of the White House Office of Science and Technology Policy (OSTP) would be making a presentation on the newly created UAS Integration Pilot Program, in addition to the MITRE and TG reports. Next, Mr. Cleveland recognized the efforts of TG1 (Co-Chairs Brendan Schulman and John Eagerton) and commended RTCA's rebalancing efforts in support of the group. He noted that TG1 has developed a list of Common Principles and will present a status update on that work. He then recognized TG2's (Co-Chairs Sean Cassidy and Rob Hughes) efforts in developing their final recommendations for DAC consideration. Next, he acknowledged TG3 (Co-Chairs Mark Aitken and Howard Kass) and highlighted that they would provide a status update as the final presentation for the day. TG3 is mid-task and is working on identifying alternative funding mechanisms as options for funding efforts to integrate drones in the airspace.

Mr. Cleveland recognized the excellent leadership of outgoing DAC Subcommittee co-chair, Bryan Quigley, and welcomed his replacement, John Allen, of jetBlue Airline. He emphasized John's experience and credibility as a leader. Following this, Mr. Cleveland emphasized that the DAC conducts a transparent process and its meetings are open to the public. He verified with DAC secretary Al Secen that no public comments had been requested to be made during the meeting.

Approval of Minutes from Previous Meeting

The minutes of the previous meeting were unanimously approved as distributed.

FAA Remarks

Dan Elwell, Deputy Administrator, and Chief NextGen Officer, FAA
Ethan Klein, Policy Advisor, White House Office of Science and Technology Policy
Earl Lawrence, Executive Director, FAA UAS Integration Office
Teri Bristol, Chief Operating Officer, FAA Air Traffic Organization

Please see attachment 4 for the FAA Deputy Administrator and Chief NextGen Officer's remarks.

Mr. Ethan Klein presented a slide that introduced the new UAS Integration Pilot Program. The Administration sees this pilot program as a priority. Mr. Earl Lawrence also presented additional information on the pilot program and informed the DAC that an announcement of the program was officially released in the Federal Register, thus opening the application window for the program. Mr. Lawrence outlined the sequence of events for applying and being awarded a role in the pilot program. He reviewed the application process and indicated there had been substantial interest already shown. He further noted that additional information is available online on various websites.

Ms. Teri Bristol spoke about the success of LAANC (Low Altitude Authorization and Notification Capability) in reducing the time of approving authorizations for drone operators from days to minutes. The LAANC program is a partnership between the industry and FAA. It provides an automated process that reduces the approval time from 60-80 days, to 15 seconds.

Question: What role will the DAC play in the pilot program process?

Response: That was alluded to in opening remarks of the Deputy Administrator. There is an expectation of a re-tasking of TG1 to assist with the pilot program. That full tasking is expected soon. The websites set up by the FAA have FAQs and information about the pilot program. There is a helpdesk and social media presence. But before a new tasking for TG1 can be released it must be reviewed to ensure there will not be an organizational conflict of interest (OCI) for companies that wish to serve on the DAC and participate in the pilot program.

Question: How is the pilot program addressing liabilities?

Response: There have been no proposals received yet. The FAA wants to be surprised and hear things that are important. Liabilities have been discussed in reference to local communities with respect to drone operations. The FAA is looking for these projects to help determine answers to these questions. The White House is making sure that the FAA is working with local authorities to address these issues. Additionally, the FAA is looking to dive down into those tough questions to identify responsibilities. Other federal agencies are involved in the pilot program and will provide their expertise.

Question: Can the FAA elaborate on whether airport authorities can apply as a lead for a proposal?

Response: Yes, they can apply. Several already have.

Question: Will there be any public review period to allow comment on the proposals?

Response: No, because this is a contracting opportunity and there is a Screening Information Request (SIR) that lays out exactly how the proposals will be evaluated. There is no expectation of the public reviewing the material. Additionally, the FAA has direction from the Presidential Memo to coordinate with DoD, DHS, and NASA to get input on applicants. The decision to award lies with the Secretary of Transportation.

Question: Does this mean that only government will review for safety and security?

Response: Yes, But the FAA is soliciting community involvement as well. Applicants should coordinate with the public to determine their interest. If the public citizens of the locality applying for the program are not interested in having the program go forward, it will score lower in evaluations. There are a maximum number of applications (1,000) and it is expected that some of them will address drone operation time/use/manner questions, or zoning regulations affecting take-off and landing. Involving communities in the development of the proposal will serve as the community vetting process.

Question: Is there any federal funding for the pilot program?

Response: There will be no federal funding.

Question: Data will be very important in this endeavor. Is there a plan for what data will be collected, how data will be collected, and to whom and how the data will be disseminated?

Response: The FAA has been preparing for this program for a while. The planning office in the FAA is proceeding in a methodical way to define data required and data-gathering steps. The FAA is building on the existing Mission Logging System for test centers but will not set forth data requirements ahead of time. Those requirements will be articulated in the MOA agreements approved regarding what data will be collected (technical, information, community established criteria, etc.)

Question: Will there be any commitment to make the data collected available to everyone?

Response: Yes – all collected data will be available in the presidential report. A decision on releasing in any other form has not yet been made.

Question: Authorizations and pilot authorizations have been victims of our success. Automation is key. Help us understand the data collection process and how the data is going to be used--how state and

local officials can participate? How is this going to be automated, and how this will come together over time?

Response: FAA will be focusing on automating the system. Applicants need criteria and the local communities will teach them what they need. A sheriff can call [FAA] ATC and request a flight restriction. Many forget that. What criteria do they use to request airspace restriction? If we can automate that, it would be very helpful and will also help with the UTM concept. How we put it all together will be key in moving forward.

Question: (Follow up question) In manned aviation we have had great success in collaborating on safety cases. We have done so working as a team (labor, private, operators). This seems to be different. I am encouraged by the [pilot program] initiative but am concerned the process could exclude insights from some stakeholders.

Response: Are you referring to the Commercial Aviation Safety Team program? (Questioner: Yes, In part).

Response: I misunderstood the previous question as asking if all stakeholders would be involved in the selection (award) process. What you are describing is exactly what we want for the conops of the future. They would not be involved in the selection, but we would expect the proposal to address safety.

Question: Do you see the lead applicants being grouped by mission, or use cases, or by institutional affiliation? Will priority be given to certain use cases?

Response: The memo outlines the objectives. Geographic diversity (and others) will be a selection criterion. The criteria are also outlined in the memo (technological advancements, balancing of local and federal authority, what is the interaction among them). UTM, BLOS, etc. will be prioritized. We are looking for diversity among the projects selected. Proposals should assume using existing authorities and resources. Also, this is a rolling program, in which we will initially tee up at least 5 projects for the Secretary to endorse. The final number will be driven by resources (i.e., the larger the projects, the fewer there will be (and vice versa) due to resource limitations).

Question: Regarding liability and safety, how does the safety responsibility get delegated to local authorities?

Response: Everything is predicated on existing laws and regulations. Any project that requires BVLOS requires the appropriate exemption and waivers from FAA. BVLOS site projects will get priority because we are trying to advance those particular activities. However, the proposed operation still must be safe. The idea is to not bypass safety requirements.

Question: What altitudes are involved in pilot program?

Response: The presidential memorandum opens up to 200 feet and allows up to 400 feet for operations.

Question: How would you view any overlapping or layering of local governments applying for the pilot program?

Response: We would welcome multi-jurisdictional applications that are being cooperative among multiple jurisdictions.

Question: Who will ensure coordination among levels?

Response: We are learning more and more about overlapping authorities. The FAA has learned that some local authorities can't apply to the pilot program because their state pre-empts them. The FAA is learning how this works and is not quite sure how this will be covered. We will take applications at face value, judging applications on information received. We expect that coordination among local jurisdiction will be done prior to application with FAA. We are moving forward with the underlying assumption that if a city is applying for something they have the legal authority to do so.

Comment: This presentation has been very helpful to the DAC and TG1 also. We expect data gathered will feed back into our future tasking.

MITRE Presentation on Local Outreach

Michael Guterres, Principal, Navigation & Unmanned Aircraft Systems, The MITRE Corporation

Mr. Guterres presented findings from their focus sessions with city and county representatives at the US Conference of Mayors Conference and the National Association of Counties Conference (refer to the slide material for the details of the presentation). The main topics discussed included input from participants on opportunities, challenges and issues facing local authorities, and communities with respect to the drones in the airspace. Mr. Guterres presented information in the following areas: background information; county and city representatives; state map outline; major findings; jurisdiction and enforcement; outreach; education and training; major concerns; benefits and positive feedback; differences between mayors' and county officials' feedback; and recommendations and next steps.

Comment: A member noted the tactical perspective of the counties and the strategic perspective of the mayors. The existence of a consistent data model of perspectives is encouraging.

Question: Is education and training a topic that the DAC will take on this afternoon or is it being tabled until TG1 is re-tasked?

Response: There were thoughts of asking the DAC to incorporate education and training into their recommendations going forward. The focus sessions conducted by MITRE alerted local officials to an existing monthly FAA telcon with law enforcement. We need to get that word out more.

Question: Did the study reveal any interest in local authorities regulating manned aircraft?

Response: No. The concern was brought up (i.e., a patchwork of rules). Some stated it could perhaps be managed like 911 (the emergency phone number). There was general recognition of the challenge, but not many solutions. Many are looking at drones as extended ground assets.

Comment: (Non-DAC member) Tom Odell, representing the NLC, stated the NLC has already been getting letters about drones. He commended MITRE for their presentations and encouraged them to include NLC in their research.

Response: RTCA noted that Brittney Kohler is a working with them to ensure they have the right representatives on the DAC TGs, and she, in fact, recommended that Mr. Odell attend this meeting.

DAC Subcommittee Co-Chairs

Nancy Egan, Consultant, 3DRobotics, and John Allen, Vice President of Safety, jetBlue Airways

Mr. Cleveland introduced Nancy Egan and John Allen as the Co-Chairs of the DAC Subcommittee. Ms. Egan thanked the FAA and member organizations of the DAC who helped with the California wildfires this summer. She further thanked the FAA, Dan Elwell and Earl Lawrence for providing encouragement to the DACSC to bring the best thinking forward, including alternate views so the FAA gets the benefit of the best substantive thinking. Ms. Egan thanked the leaders and members of TG1, TG2 and TG3, who have put in many hours and produced incredible work. She also welcomed new Co-Chair, John Allen.

John thanked Ms. Egan and Bryan Quigley (outgoing DACSC Co-Chair) for their work. He stated that a regulator should be an enabler for new technology and to make new technologies work. This means we should not be risk averse and we should build trust. They then introduced TG1 Co-Chairs, Brendan Schulman and John Eagerton.

TG1 – Roles and Responsibilities Report Out

Brendan Schulman, Vice President of Policy and Legal Affairs, DJI Technology and Dr. John Eagerton, Chief, Aeronautics Bureau, Alabama Department of Transportation/National Association of State Aviation Officials (NASAO)

The Co-Chairs presented the work completed since May. The TG has refocused on the Roles and Responsibilities, moving away from initial focus on enforcement. They provided a description of the meetings and exercises conducted by TG1, which included a field exercise looking at UAS altitude and the ability for ground observers to determine a UAS altitude accurately. The outcome of the field trip experiment served as input to the common principles.

The field exercise was conducted to provide operational data to understand the technology and its impact on ground observers. Following this, a “line in the sky” thought experiment was conducted to determine the efficacy of defining the line in the sky [below which local jurisdiction could manage drone operations]. Two teams were formed to advocate for the opposite view they held for the “line in the sky” argument. This required members to adopt and understand views they would normally not accept. The experiment produced excellent discussion and was a flexion point in the discussions to date. These experiments resulted in the formation of 9 common ground principles.

Teams self-formed to flesh out the principles into papers. By late September, it was obvious consensus on the papers was not possible in the time remaining, so the team refocused on just getting consensus on the principles themselves. A smaller team was formed to reach this consensus.

In bringing the 9 principle statements (5 in agreement and 4 in disagreement) to the DAC, the members should recognize that the principles, although presented singularly, should be considered in total.

Please see the slide material of TG1 for the presentation details of the 9 principles.

The 9 Principles as presented are:

- (1) Public Process to support reasonable outcomes for Local UAS Ordinances/Laws (Consensus)
- (2) UAS Operations Impact on Private Property and Interests (Non-consensus)
- (3) Common Ground Not Applicable to Manned Aviation (Consensus)
- (4) Takeoff and Landing (Non-consensus)
- (5) Initial UAS State and Local Model Policy or Guidance (Consensus)
- (6) Altitude Estimation Challenges (Non-consensus)
- (7) FAA’s Role in Aircraft Certification (Non-consensus)

- (8) Unjust or Unreasonable Discrimination (Consensus)
- (9) Generally applicable state criminal law and state tort law (Consensus)

The Co-Chairs concluded by welcoming new tasking from FAA and thanking those who attended the meetings and assisted in developing the work to date.

Comment: Mr. Cleveland thanked the TG1 leadership for their hard work.

Comment: A letter from the Mayor of San Francisco (DAC Member, not in attendance) was summarized by the Mayor's aide. The representative thanked the Co-Chairs for the presentation and clarified that where there is an alternative opinion, it is a unified response from all city/state/local representatives on TG1.

The representative then summarized the letter from Mayor Lee. The letter is attached.

First member response: A member responded that he respectfully could not disagree more with the letter and its characterization of the intent behind the TG, the way TG1 worked. Numerous invitations were extended to the state, local, and county representatives. A list of the names of the members from local, state, county representatives including several from the San Francisco Mayor's office that attended the kickoff meeting for the creation of the common principles was presented. In fact, San Francisco was better represented at the meeting than any other stakeholder and attended both sessions of the thought experiment despite the request from the exercise organizers to take part in only one. Invitations to join and participate in the TG had been made many times. The member then read from an email from the San Francisco representative in early July in which San Francisco was offered membership and San Francisco replied that they should NOT be listed as a member, but would be willing to act as an observer. The work of the members was in good faith, and the number of in-person meetings shows that this was not an attempt to drive through a single view or option. The member took personal and professional exception to the accusations from the Mayor's representative and others not familiar with the group's work as to what the team was trying to do and the good work done to get to this point.

Second member response: Several members of TG1 recognized early the need to re-balance the group, adding more local voices, and the member commended the work that RTCA conducted reaching out to and attempting to bring in additional groups, particularly from local governments. The challenge for the Co-Chairs regarding newly added participants is to bring them up to speed on the past work accomplished before they arrived; to keep the process moving without interruption, yet bring new members aboard. The leaders tried very hard to accommodate that reality via information distribution and communication mechanisms. They attempted to find dates for meetings that met most people's schedules through polling. They did their best to pick time/place/venues to have all participate. Meeting notes and data are all posted to Workspace for members to review. All members have other

jobs and are working hard - there are challenges and the TG has done as good a job as they could with the challenges they faced.

Third member (DFO) response: Appreciate both answers from the Co-Chairs. The FAA seeks recommendations and consensus, but the FAA found the options to be edifying and the discussion of how they were reached very interesting. He thanked the Co-Chairs for characterizing the alternative opinion as options and noted that he did not hear the output characterized as consensus and “minority rebuttal”, saying it was gracious of the Committee to do that. He acknowledged that he has been working with RTCA on the reconstituted TG makeup that he hopes will be more balanced. He recognized the many requests for additional community involvement and will keep working to maintain that balance.

Question: Hypothetically, if the TG balance had been closer to 50/50 in makeup [local government to industry], would the makeup of the principles have been substantively different?

Response: The experience of the Co-Chairs has been that the ratio of representatives is not as important as the attempt to make a thoughtful, good idea to gain support. One person can offer an excellent idea. The exercise to develop the principles was to “put yourself in the other world”, which means we had two, roughly, equal numbers of people in each group.

Comment: From manned aviation perspective, having a variety of opinions is normal. The public must buy-in to any change in accepting drones. We should all keep that in the forefront of the process. Every opinion is important, and we should not undermine public confidence.

Comment: The process is moving along. The previous comment regarding active involvement is right on. Our organization (National Association of Counties) supports the process and will be an active and thoughtful participant going forward.

Comment: In the case of law enforcement, that role is a unique public role and we need to have the right numbers to address these unique concerns. They have been present as subject matter experts, but should be brought on as members for the entirety.

Question: What are the mayor’s thoughts on what consensus is?

Response from Mayor’s Representative: If the goal is to have consensus, you have to come to agreement on something. That may be impossible and that is recognized. But this process was not consensus as the principles were not presented as balanced. When options were presented, Option 1 was shown as the work of the TG and Option 2 was shown as a subset of the whole group. We don’t support that view.

Comment (DFO): As a DAC Member, I did not interpret what I heard that way. The leadership did a very nice job of presenting the material as option 1 and option 2, and it's very clear that option 2 is also not consensus. Option 2 is the view of a narrower group than what option 1 represents. We have to be careful to say that when this is presented, the leaders are not biasing this one way or another. What's coming out is something very different than that.

Comment: It is important to note these are not recommendations. Option 1 was the result of the thought experiment and discussion by the group as a whole. Option 2 was a submitted alternative that was not subject to discussion by the group. So, the two options are actually different, but neither one is being reflected as consensus or a recommendation.

Question: Is there a new direction for TG1?

Response (DFO): The new tasking is being refined. It will be closely aligned with the pilot project and the DAC can help inform the pilot project. TG2 may also be better aligned to support the pilot project.

Question: Can the Co-Chairs comment more on the experiment on the line in the sky and can it help the DAC establish airspace going forward?

Response: Principle 2 deals with the Line in the Sky experiment. It was thought by most members that, if there is a line, (below which is owned and managed by local authorities rather than the FAA) it matters where you put it. Putting the line too low is a concern for privacy and can be handled by privacy laws or other constructs. Putting the line too high begins to intrude on useful airspace operations that save lives and transmit the news and other operations recognized as beneficial. It will matter where that line goes, and the higher the more flexible the regulation has to be (exceptions, presumptions, etc.). Perhaps the pilot program can help here (this was discussed during the TG1 field trip).

Question: Most language in the principles is about privacy and trespass, but what about safety - where does that come into play in the discussion?

Response: The TG had guiding principles developed a year ago and safety was paramount. After the prioritization exercise early on, the group focused on enforcement. The tasking statement asked what the interests of the government in UAS integration were.

Safety, if not explicit, is implicit in everything we discuss. Flying over people and flying low raises safety concerns.

Comment: Every time we look at recommendations, we should look at them with safety lens. How does each principle increase or decrease safety, and that increase or decrease can be changed based on the different perspectives?

Comment: The pilot program and the structure of the data to be collected needs to be looked at closely. Policy issues need to be thought of in terms of data that can be collected.

Outcome: TG1's presentation of Common Principles was accepted by the DAC. TG1 will be reconstituted for follow-on taskings.

TG2 – Access to Airspace Report Out

Sean Cassidy Director, Safety & Regulatory Affairs, Amazon Prime Air, and Rob Hughes, Senior Policy Advisor, Northrop Grumman Corporation

Mr. Cleveland introduced TG 2 Co-Chairs and noted that their work has been reviewed by the DAC previously (at the May meeting). The TG was given instructions to update their material and that has been done and brought back to the DAC for approval. The recommendations delivered to the DAC today will be voted on for transmission to the FAA. This has gone through an iterative process over the past few months.

Mr. Cassidy began by extending regrets for Mr. Hughes, who could not attend the meeting. He then reviewed the process the TG used to create the deliverables. The group began with a deep dive of the tasking statement from the FAA, establishing the boundaries of the activities to make sure the deliverables would be timely. It also set the boundaries for the group in terms of scope, namely, what they were not going to do as well as what they were going to do.

The process should define deliverables that can be implemented within 24 months. The TG examined the current state of affairs and the current framework for the airspace. The group also developed assumptions and guiding principles. As an example, the group did not focus on anything that would be covered by Part 107 exemptions. Then, they examined market demand to narrow the focus to low-altitude operations, beyond line-of-sight, primarily below 400 ft. Looking at detailed desired use cases allowed the group to identify how current operating rules affect those use cases. Smaller groups were then formed within the TG and papers written that became the deliverables to the DAC. That foundation facilitated full consensus on all the issue papers. The industry players involved represented a diverse group bringing forward many opinions and concerns.

The results of TG2 were the highest priorities for what operations should be given access to the airspace next. The group proposes to continue their work, developing recommended mechanisms for implementing the recommendations.

The group felt a peak market demand would be in Class B airspace surrounding the 37 largest airports in the United States and the 30 mile “mode-C veil” airspace that surrounds the Class B areas. Agreeing that that airspace should be the subject of the recommendations, the group focused on how operations could be enabled safely. Most aircraft operating in the given airspace have requirements for communications equipment/capabilities. The group would like to address how that fact can be accounted for in the recommendations.

The final report and presentation are attached.
The recommendations are summarized as follows:

1. **Prioritize sUAS BVLOS operations within the Mode C Veil below 400 ft AGL:** operations below the altitude where most vehicles operate, but are equipped to allow their location to be positively conveyed through standard communications interfaces (and when needed, with ATC) and understand where everyone else in the volume of airspace is. (This recommendation lead to cascading ideas that are all related.) These operations would allow close flight near airports if the flights do not cross the arrival/departure corridors for the runways.
2. **Develop technology-neutral navigation performance requirements:** This volume of airspace will require a framework that allows performance-based beyond visual line-of-sight operations that is agnostic to technology (equipment) and focuses on the performance requirements for operating in that airspace and allows industry to innovate to meet those requirements.
3. **Evaluate the minimum requirements needed to meet low altitude UAS command and control (C2) operations.** Thinking in terms of performance based requirements, we should be thinking about ways of managing command and control that are not necessarily the same as traditional aviation (aviation protected spectrum). How can we leverage cell phones and the networks that support them, if that can be done safely? How can Wi-Fi be used similarly to how dedicated short-range communications in the automotive industry are used for anti-collision devices?
4. **Establish a FAR Part 135 regulatory “pathfinder” program for commercial UAS low-altitude (<400’) BVLOS Operations: because Part 107 explicitly excludes air carrier operations (commercial operations) and specifically prohibits beyond line-of-sight operations and common carriage.** How can these operations be enabled? Meetings were held with FAA representatives on the regulatory requirements that revealed many rules that relate only to manned operations (PIC time, supplementary oxygen). We should be looking at existing rules and developing similar rules specific to UAS operations in the low-altitude regime. This can be done by identifying existing rules that must be complied with, and those that shouldn’t hinder UAS operations, but might have an alternate means of compliance.
5. **Develop Beyond 24-month Timeframe Recommendations:** Even though the initial tasking order was to develop recommendations that could be implemented within 24 months, the end goal must look at beyond 24 months as a result of the recommendations being made. The

recommendations made here will need to be examined for the mechanisms that should be put in place to implement these recommendations.

The final report incorporates changes requested by the DAC during the May 2017 meeting.

Question: Thank you for the recommendations. The wording of recommendation 1 may be unclear – does it refer to flight within the Mode C veil below 400 ft.?

Response: Yes. It refers only to flights below 400 ft.

Comment: Recommendations 3 and 4 are forward looking and complimentary with the integration pilot program and the pilot project can help inform answers.

Question: On the conventional aviation side, there are many good aspects of the recommendations. For example, Required Navigation Performance (RNP) and Required Communication Performance (RCP) should not be prescriptive. There seems to be a natural tension between technology and interoperability. How do we manage that tension?

Response: We need to pursue standards and guidelines that define performance. This can be done through interoperability standards and performance-based standards and by using performance-based standards that allow moving away from specific technology [i.e. are not too proscriptive].

Question: Is that similar to ADS-B, having two frequencies to operate? In other words, the technology (frequency) is not prescribed, but the performance of the ADS radio is?

Response: Yes.

Comment: Returning to the previous question about the Mode C Veil, the language "which includes Class B airspace" seems to be ambiguous and may lead to confusion. Recommend striking the clause from recommendation 1 for clarity before forwarding final report to the FAA.

Response: This goes back to the assumptions and guiding principles of the TG. Where is the market demand that needs to be met? Think of this in terms of stepping stones and make safety a priority. This needs to be scoped down to actionable recommendations.

Question: If we are making a recommendation from the DAC, public perceptions are important. In terms of priorities, is it more important to reach for rural access first? Would that make this initiative more successful? We should be mindful of where the lesser risk is.

Response: The TG considered where the point of entry for the recommendations is. These started with the FAA. If you are outside of the Mode C Veil, it does not speak to the market demand. These operations are already occurring under Part 107 waivers (for rural operations), and the TG wanted to examine beyond the current rules.

Question: When you say BVLOS, are you including all operations over people and nighttime operations, or focusing on a subset of those flight profiles?

Response: The TG was focusing on those use cases that are not part of Part 107 and this does include nighttime operations and flights over people. TG2 identified the BVLOS and nighttime operations as the framework of future use cases.

Question: Was there any discussion in the Subcommittee of moving the bar too quickly? Should we only allow one change at a time (e.g., BVLOS; nighttime operations; flights over people), or all three at once?

Response: The TG felt that would be a question for the next tasking. The Pilot Program will answer some of those questions also.

Question: Thinking about the future and what is appearing in draft legislation, what might be useful to the FAA going forward (in Part 135 or other places)? How can the DAC be useful going forward?

Response: *Recommend the next step is to have the DAC stand up a tiger team of SMEs to define within the category of aircraft what is applicable to UAS* [in Part 135]. What needs to be done to establish an alternate means of compliance and what are things that are clearly out of bounds (like oxygen requirements)? Having guidance for applicants would greatly benefit the industry.

Question: Does TG2 have a reasonable timeframe in mind for implementing these recommendations?

Response: We considered 24 months (as detailed in the tasking letter), and this is why the group stayed away from some items (e.g., rewriting Part 107; redo airspace rules). The TG looked at using technologies that were available and operations that were within the current airspace rules.

Comment: For the record, in looking back when the DAC first received this tasking, the idea was to enable services for the operators within a reasonable amount of time with the reasonable regulation.

Response: Taking things in small pieces and resolving them, codifying it and moving on is the way to go.

Question: When it says, "Recommend FAA prioritize BVLOS UAS Operations", do we mean prioritize the rules to allow it or prioritize it over manned operations?

Response: No, the recommendation is to make the development of rules or operating guidelines a priority for unmanned systems; not to prioritize one set of operations (unmanned) over another (manned).

Question: Are you recommending focusing on BVLOS before and at the exclusion of flight over people or at night?

Response: These recommendations are not that granular. The TG does not envision BVLOS that precludes flight over people and nighttime operations. So, no, it does not preclude those other operations.

Comment: At the time the DAC was tasked [with this work], the team consciously skipped ahead because they thought they were on the verge of having rules in place that would cover some of these situations [because there was a Flight Over People ARC in place]

Final Comment: With clarifying amendment, call for motion to approve the recommendations

Outcome: Mr. Cleveland called for motion to approve the recommendation. It was so moved and seconded. The document was approved.

TG3 – UAS Funding Report Out

Mark Aitken, Director of Government Relations, AUVSI, and Howard Kass, Vice President of Regulatory Affairs, American Airlines

Mr. Cleveland introduced TG3 Co-Chairs, Mark Aitken and Howard Kass.

Howard Kass commented that the timing of the DAC couldn't be better. The group has made great progress through listening sessions and in-person meetings. As industry makes investment decisions, the question of the right mechanism for paying for things is in the forefront.

Before proceeding, the TG leadership thanked the DAC members for allowing their staff to participate on TG3 and recognized Nan Shellaberger (FAA) and her staff on the excellent support they have provided to TG3.

One caveat on the presentation material was stated, namely that it had to be prepared and proved 4-6 weeks prior to this meeting and so some material might be out-of-date.

The success of the industry depends on a strong private sector and government collaboration. The FAA is funded primarily from money from airline ticket taxes and fuel taxes and money appropriated by Congress (the latter being a small part of the budget). All the interest it has generated by the pilot program, proves that the FAA needs to have its required resources funded to keep up with the pace of progress of the drone industry. TG3 submitted short-term recommendations in July 2017, and long-term recommendations are due in March 2018. The listening sessions held by TG3 were open to the entire DAC (not just the TG) and focused on: 1) how should these activities be funded, and 2) a little bit on how should the FAA organize. The FAA is currently organized to support one very broad client base: manned aviation (notwithstanding commercial space). As mentioned earlier, a new chapter in the history of aviation is being written. While this is happening, the book is not being closed on previous chapters. The listening sessions have provided great input and generated great conversation on both of these activities.

The principles upon which the TG bases its finding are equity and scalability (to allow for growth). TG3 members are concerned that dollars spent are dollars being taken away from manned aviation. Funding mechanisms include taxes and fee-for-service. Taxes can be based on size/weight/operation of the user. These items do not represent final recommendations but have been discussed in the listening sessions.

The TG has been grappling with what is “equitable” in funding. The TG has expressed numerous questions it intends to answer. The current administration has indicated the safe and expeditious introduction of drones into the airspace is a priority for them and Congress has acted to put forth resources to accomplish that. TG3 believes there should not be a negative ramification for manned aviation as this effort moves forward.

There are many activities that need to be prioritized within the FAA. Who is shouldering the cost for the activities (industry/government/shared)? The group is struggling with the concept of sharing the costs (between government and industry) and what activities lend themselves to cost-sharing. What is the ratio of costs for industry and government and can this cost ratio change in relation to activity?

The TG is trying to think creatively. The TG will now break into smaller groups to fill in the details. What might fit in the next 3-5 years? The most “out of the box” thought is for classes of airspace as defined in the UTM concept (similar to the framework the FCC uses for spectrum allocation). We are unsure if the UTM concept is analogous with FCC spectrum options. The task is to explore options and that is what the group is doing.

Lately, the group has been focusing on the current landscape (LAANC and UTM). The next few meetings will be to provide finer details for the DAC to consider.

One of the challenges the TG faces is the lack of good data on what future costs are. The FAA should consider establishing a cost accounting system.

The industry is spending and building out infrastructure and the FAA must regulate that build-out. How should that be paid for? Since no one is flying today, industry is being asked to pay for something they can't use.

Question: Are organizational structure options within the bounds of the scope?

Response: Not explicitly, but the money flow of the FAA touches on that. It won't have equal weighting with funding issues, but suggestions may be driven out by the funding responses.

Question: In manned aviation today, support activities are certification, oversight, and then operations. Are you using existing cost buckets for what it should look like? Follow-on question: Based on that, can you use current resources to predict the future costs?

Response: Yes, we are looking at current cost accounting categories (operations, research and development, and facilities and equipment). For the second question, applying manned rules to drones can be complicated (e.g., number of pilots for airline aircraft versus for drones; the growth of the drone numbers is unknown.) The past three FAA budget cycle numbers were examined and have been flat. Manned aviation cost is measured in the billions and unmanned aircraft costs are measured in the 10's of millions per year. There could be a significant ramp-up in the near future. TG3 has been looking to the work of TG2 to see what those costs might be (based on their recommendations). This group has to make many assumptions and they are looking to the DAC for boundaries and input.

Question: Have you looked at models for access-based fees versus a usage-based model?

Response: We have had that discussion (but haven't looked at the numbers). There has been discussion of a tax paid at the point of purchase. It has not been seen as favorable by many in the drone industry. There is no data to look at per se, but approaches such as an annual registration fee have been discussed.

Question: Drones are analogous to Wi-Fi devices (device came first, then networks followed, as opposed to the network being built first and then the devices being produced).

Response: The TG has spent a lot of time on the network model (the cell phone analogy is raised often).

Comment: Drone operators should offer data to the FAA. We assume industry will carry the bulk of expense for operations.

Outcome: Final report is due in March 2018. Set up today has been very good. Looking forward to the final report.

New Business

The Acting Chair called on the DAC members to identify new business for the DAC. No new business was identified.

Action Item Review

Action	Responsible Party	Schedule	Status
Action	Responsible Party	Schedule	Status
ACTIONS OPEN FROM PREVIOUS MEETING			
RTCA to summarize the comments received for each TG and submit for their review and consideration.	RTCA	ASAP	CLOSED
TG1 to re-look at priority 4 (State and Local Interest In and Response to UAS) with more attention.	TG1	July	CLOSED
RTCA to help identify DAC members who wish to assist in addressing county and city conventions, and to assist in defining what output can be produced that will benefit the two conventions; and work with DAC member Mayor Lee's office and Robert Boyd to get on their agendas.	RTCA	OBE	CLOSED
RTCA to coordinate a webinar for SC-228 that can be reviewed by all DAC members.	RTCA & SC-228	ASAP	CLOSED
ACTIONS OPEN FROM CURRENT MEETING			
Strike "which includes Class B airspace" from TG2's recommendation 1 for clarity before forwarding final report to the FAA. Modify the Mode C Veil language.	RTCA/TG2	Nov 2017	OPEN

Action	Responsible Party	Schedule	Status
DAC to establish a TG2 Tiger Team of SME's to define what is applicable to UAS in the existing rules.	DAC/DACSC	TBD	TBD
Re-task and reconstitute TG1.	FAA/RTCA	Spring 2018	OPEN
Future DAC Agenda item for DAC procedures and meeting tenets.	DAC/RTCA	Spring 2018	OPEN
Coordinate DAC 2018 Meeting Schedule.	RTCA	Dec 2017	OPEN

Closing Chairman Remarks

Mr. Cleveland thanked the DAC members for attending and participating in the DAC meeting. He also thanked Administrator Huerta for his leadership and accessibility to the aviation industry. He commented that Administrator Huerta has been an incredibly effective link between government and industry.

FAA DFO Closing Remarks

The Deputy Administrator thanked Amazon for being great hosts. He said he was encouraged by the attendance at the meeting. He reiterated the Unmanned Aircraft Systems (UAS) Integration Pilot Program numbers mentioned earlier in the day and referenced the White House presidential memo on the Pilot Program. He stated that the FAA welcomes any ideas going forward within the confines of the OTA structure and are open to more discussion and training on how this is going to progress. The Pilot Program will inform this nascent industry, so they want to get it right.

He continued that he couldn't emphasize enough his thanks to TG1 for the group's efforts, and it is not a failure or a flaw that there are alternate options; it was edifying and educational, and with more time they could have reached consensus. He thanked TG2 for their recommendations. He found them to be superb and he believes many of those recommendations will complement the Pilot Program. In referring to the TG3 work, he expressed his concern that the recommendations of funding and budget is outside of the control of the FAA. The FAA is not as interested in those recommendations as they have little say in how to implement recommendations.

He observed that this is possibly the first advisory committee he has sat through where the FAA reauthorization was not discussed, and he reminded the group that the FAA is on an extension until the

end of March. Since this is a high-profile part of FAA, there are things that may happen in the legislative process until March. There is a controversial proponent of the house bill to move ATO out of the FAA. If that were to become a reality, that would change the complexion of these discussions quite a bit. There is much going on outside this room that will affect the work being done by this group and subgroups.

He said that the next time the DAC is together, he hopes for progress on those fronts. He closed by thanking everyone for taking time to attend and provide input.

Adjournment

The meeting was adjourned at 4:30 PM.

Exhibit 13



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ORDER

1110.77Y

Effective Date:

3/29/2018

SUBJ: RTCA Charter

- 1. Committee's Official Designation.** RTCA Advisory Committee.
- 2. Authority.** The Federal Aviation Administration (FAA) finds that it is in the public interest to utilize the RTCA advisory committee in connection with the duties of the FAA under law, and in accordance with the provisions of the Federal Advisory Committee Act (FACA), as amended, Pub. L. 92-463, 5 U.S.C. App 2.
- 3. Objectives and Scope of Activities.** RTCA, Inc. is a private, not-for-profit association that is utilized as a federal advisory committee by the FAA. The RTCA Advisory Committee, composed of RTCA members appointed by the Secretary, works in response to requests from the FAA, providing recommendations from the aviation community on issues/challenges involving: air transportation concepts, requirements, operational capabilities, the associated use of technology, and related considerations to operations that affect the future of the Air Traffic Management System and the integration of new technologies by providing recommendations in these areas. As requested by the FAA, the RTCA Advisory Committee provides advice on topics including but not limited to: Next Generation Air Transportation System (NextGen), Tactical Operations, new entrants such as Unmanned Aircraft Systems (UAS) and other technical requirements for the FAA. The RTCA Advisory Committee does not exercise program management responsibilities and makes no decisions directly affecting the programs on which it provides advice.
- 4. Audience.** This order applies to the FAA and all members of the RTCA Advisory Committee that participate in advisory activities for the FAA.
- 5. Where to Find This Order.** You can find this order on the FAA.GOV website under the "Regulations & Policies" tab and select "Orders & Notices" or on the My FAA Employee website. Use "Tools & Resources" tab and select "Orders & Notices."
- 6. This Order Cancels.** FAA Order 1110.77X, RTCA, Inc. (Utilized as an advisory committee), Effective Date: September 29, 2017.
- 7. Description of Duties.** The objective of the RTCA Advisory Committee is to assist the FAA with seeking resolution and/or investigating options for resolution. At the request of the FAA, this committee will perform the following advisory duties:

a. Develop recommendations to meet government and industry common objectives and responsibilities, taking into account aviation system user and provider requirements.

b. Analyze and recommend solutions to the challenges the aviation community faces as it continues to increase safety, security, system capacity, and efficiency.

c. Develop consensus recommendations on solutions to meet user and provider requirements, including developing recommendations of minimum operational performance standards for electronic systems and equipment that support aviation.

d. Facilitate planning between government and industry to achieve a consensus-based set of recommendations on issues that include, without limitation, those that are critical to setting international standards, ensuring successful implementation of NextGen, Air Traffic Management System modernization, and new entrants into the National Airspace System (NAS).

e. Support FAA by providing recommendations for: (1) investment priorities and (2) minimum performance standards, reports, and guidance documents.

8. Agency or Official to Whom the Committee Reports. The RTCA Advisory Committee reports to the Secretary of the Department of Transportation (DOT) through the FAA Administrator.

9. Support. FAA will provide support for the RTCA Advisory Committee and its subcommittees. The FAA will participate and provide requirements, review and consider guidance. In addition, the Designated Federal Officer (DFO) (see paragraph 11) for the RTCA Advisory Committee and subcommittees will determine appropriate FAA participation to ensure proper understanding of the subject matter.

10. Estimated Annual Operating Costs and Staff Years. The FAA's operating costs to support RTCA Advisory Committee and its subcommittees for the period and scope specified by the charter shall not exceed \$250,000 and 9.5 full time equivalent (FTE).

11. Designated Federal Officer. The FAA Administrator, on behalf of the Secretary, designates full-time or part-time employees, appointed in accordance with agency procedures, as the DFO (or alternate DFO) for the RTCA Advisory Committee and subcommittees.

a. The DFO or alternate will ensure compliance with FACA, and any other applicable laws and regulations

b. The DFO or alternate must be present at all the RTCA Advisory Committee and subcommittee meetings

c. In accordance with the FACA, the DFO or alternate must perform the following duties:

1) Call, attend, and adjourn all the committee/subcommittees meetings

2) Approve all committee/subcommittee agendas

- 3) Maintain membership records
- 4) Ensure efficient operations
- 5) Maintain required records for availability to the public
- 6) Provide copies of RTCA Advisory Committee reports to the Committee Management Officer (CMO) for forwarding to the Library of Congress
- 7) Adjourn any meeting in coordination with the committee chair when doing so would be in the public interest; and
- 8) Chair meetings when directed to do so by the FAA Administrator

12. Estimated Number and Frequency of Meetings. Committee and subcommittee meetings will comply with the following applicable provisions of FACA:

a. The RTCA Advisory Committee will meet at least annually, as required, to carry out its responsibilities. The Program Management Subcommittee will meet quarterly, as required, to carry out its responsibilities. The NextGen, Tactical Operations and Drone Advisory Subcommittees will meet three times a year to ensure continuity and good preparation for public decision-making meetings. Special subcommittees meet as their workload requires.

b. RTCA Advisory Committee and subcommittee meetings will be open to the public, except as provided by section 10(d) of the FACA and applicable regulations. Meetings will be announced in the Federal Register at least 15 days before each meeting, except in emergencies. Additionally, the FAA may use other forms of notice, such as press releases and web site notifications for committee and subcommittee meetings.

c. Anyone interested may attend meetings and appear before the RTCA Advisory Committee or subcommittees within reasonable limits of space and time. Additionally, anyone interested may file written statements with the committee/subcommittees. RTCA Advisory Committee will provide public web access to committee/subcommittee meeting agendas, summaries and other appropriate materials. This includes documents that are in the Final Review and Comment (FRAC) period.

13. Duration. The period of performance for this charter is March 29, 2018 through May 29, 2018. All subcommittees will be on a continuing period of performance for the duration of the charter, unless its tasks are completed prior to the two months.

14. Termination. The charter shall terminate 2 months after its filing date unless renewed in accordance with FACA and other applicable regulations.

If RTCA Advisory Committee is terminated the FAA will give as much advance notice as possible of such action to all participants.

15. Membership and Designation. The Secretary will appoint members based on the recommendations of the FAA. The membership varies to address the complexity of the topic.

Membership includes FAA regular government employees, special government employees, and various representative members from the aviation sector, including manufacturers of aircraft and aircraft systems; airports and air traffic management; dispatchers, pilots and operators; state/local government; and others in the aviation industry.

Members also may be drawn from FAA's Office of NextGen, Security and Hazardous Materials Safety, Air Traffic Operations, Aviation Safety, Airports Division, Policy, International Affairs and Environment Office, as well as MITRE Inc.

In addition, the chair of any subcommittee may request that the RTCA Advisory Committee invite experts in a non-represented subject matter, if it is determined essential to the successful completion of its function.

a. The RTCA Advisory Committee has approximately 24 members, NextGen Advisory Subcommittee has approximately 43 members, Drone Advisory Subcommittee has approximately 79 members, Tactical Operations Subcommittee has approximately 18 members, and Program Management Subcommittee has approximately 21 members. Membership is determined by the topic.

b. Non-government representatives will serve without government compensation. The employing organization bears all costs related to its participation. They must represent a particular interest of employment, education, experience, or affiliation with a specific aviation-related organization (reference Department of Transportation (DOT) Order 1120.3B, Committee Management Policy and Procedures, Ch. II, 10.a).

16. Subcommittees. The FAA has the authority to create and dissolve subcommittees, as needed. All subcommittees, must report to the RTCA Advisory Committee and must not provide advice or work products directly to the agency unless operating under the authority and requirements contained in FACA, §102-3.145.

17. Recordkeeping. The records of the committee, formally and informally established subcommittees, or other work or task subgroup of the subcommittee, shall be handled in accordance with the General Records Schedule 6.2, or other approved agency records disposition schedule.

The committee/subcommittee chair must certify the accuracy of the minutes. Meeting summaries are available to the public and are posted on the RTCA web site at <http://www.rtca.org>.

a. Subject to the Freedom of Information Act, 5 U.S.C. § 552, records, reports, transcripts, minutes or meeting summaries, and other materials presented to or prepared for the RTCA Advisory Committee are available for public inspection.

18. Filing Date. This charter is effective March 29, 2018, the date on which it was filed with Congress.

3/29/2018

1110.77Y

19. Distribution. This order is distributed as referenced in Paragraph 5 of this Order.

A handwritten signature in black ink, appearing to read "D Elwell", written in a cursive style.

Dan Elwell
Acting Administrator

Exhibit 14

Drone Advisory Committee Membership – March 2018

Domain	Member
Designated Federal Officer	Dan Elwell , Deputy Administrator, FAA Federal Aviation Administration
Chair	Brian Krzanich , CEO, Intel
UAS Manufacturers	Linden Blue , CEO, General Atomics Aeronautical Systems, Inc. James Burgess , Product and Systems Lead for Project Wing, X Nancy Egan , Advisor to the CEO, 3D Robotics Martin Gomez , Facebook Gur Kimchi , Co-Founder and Vice President, Amazon Prime Air Brendan Schulman , VP of Policy & Legal Affairs, DJI Technology Michael Chasen , CEO, PrecisionHawk USA Inc.
UAS Operators	Greg Agvent , Senior Director of National News Technology, CNN Todd Graetz , Director, Technology Services, UAS Program, BNSF Railway
UAS Hardware Component Manufacturers	Nan Mattai , Senior Vice President, Engineering & Information Technology, Rockwell Collins, Inc. Phil Straub , Executive Vice President and Managing Director, Aviation Division, Garmin, Ltd.
UAS Software Application Manufacturers	Jaz Banga , Co-Founder & CEO, Airspace Systems, Inc.
Traditional Manned Aviation Operators	Mark Baker , President and CEO, Aircraft Owners and Pilots Association Robert Isom , President American Airlines Group, American Airlines Houston Mills , Global Aviation Strategy & Public Policy Director, United Parcel Service (UPS) Steven Rush , President, Professional Helicopter Pilots Association Matthew Zuccaro , President and CEO, Helicopter Association International (HAI)
Airports and Communities	Deborah Flint , CEO, Los Angeles World Airports Marilyn Mora , President and CEO, Reno-Tahoe Airport Authority
Labor (controllers, pilots)	Tim Canoll , President, Air Line Pilots Association Trish Gilbert , Executive Vice President, National Air Traffic Controllers Association (NATCA)
R&D, Academia	Juan Alonso , Professor in the Department of Aeronautics & Astronautics, Stanford University Nancy Leveson , Professor of Aeronautics and Astronautics, Massachusetts Institute of Technology



THE GOLD STANDARD FOR AVIATION SINCE 1935

RTCA, Inc.
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Washington, DC 20036
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Fax: (202) 833-9434
www.rtca.org

Domain	Member
	Robie Samanta Roy , Vice President Lockheed Martin Corporation
Local Government	Robert Boyd , County Commissioner, Riley County, Kansas David Greene , Wisconsin Department of Transportation, Bureau of Aeronautics
CNS and Air Traffic Management Capabilities	Christopher Penrose , Senior Vice President, Internet of Things, AT&T George Kirov , Vice President & General Manager Commercial UAS Solutions, Harris Corporation
Other Stakeholders	Brian Wynne , President and CEO, Association for Unmanned Vehicle Systems International (AUVSI)
Other	Rich Hanson , President Academy of Model Aeronautics

Exhibit 15

GENERAL RECORDS SCHEDULE 6.2: Federal Advisory Committee Records

This schedule covers Federal records created or received by Federal advisory committees and their subgroups pursuant to the Federal Advisory Committee Act (FACA) of 1972 (5 U.S.C., Appendix, as amended) and records related to the management of these committees by their sponsoring agencies or departments.

If a committee is a Presidential advisory committee, check with the agency's General Counsel before applying this schedule. If records are determined to fall under the Presidential Records Act, this schedule does not apply.

For convenience, the term "committee" is used in this schedule to mean "advisory committee" pursuant to FACA.

Item	Records Description	Disposition Instruction	Disposition Authority
Committee Records			
010	<p>Substantive Committee Records (Non-Grant Review Committees)</p> <p>Exclusion: This item does not include records of committees whose sole purpose is grant review. See item 030 for these records.</p> <p>Records documenting the establishment and formation of committees and their significant actions and decisions. Refer to agency administrative procedures to ascertain if these records are held by the CMO, GFO, or DFO. Only one copy of each record is considered permanent. Not all records described below are necessarily created for all committees. Records may include:</p> <ul style="list-style-type: none"> records related to the establishment of the committee: <ul style="list-style-type: none"> charters (original, renewal, re-establishment, and amended) enacting legislation explanation of committee need, when required filing letters to Congress organization charts committee specific bylaws, standard operating procedures, or guidelines any other materials that document the organization and functions of the committee and its components records related to committee membership: <ul style="list-style-type: none"> memos or similar documentation of how and/or why individual members were selected 	<p>Permanent. Transfer when records are 15 years old or upon termination of committee, whichever is sooner.</p>	DAA-GRS-2015-0001-0001

Item	Records Description	Disposition Instruction	Disposition Authority
	<ul style="list-style-type: none"> ○ membership balance plans ○ membership rosters ○ appointment letters, and all sub-categories of appointment letters, such as renewals, thank you letters, etc. ○ Resignation or termination letters ● records of committee meetings and hearings: <ul style="list-style-type: none"> ○ agency head's determination that a meeting or portion of a meeting may be closed to the public ○ agendas ○ materials presented to or prepared by or for the committee, such as briefing books, background materials, reports (including drafts), and presentations ○ meeting minutes ○ public comments ○ testimony received during hearings ○ transcripts of meetings and hearings (NOTE: If transcripts do not exist, audio/visual recordings are permanent under item 020) ● records related to committee findings and recommendations: <ul style="list-style-type: none"> ○ one copy each of final reports, memoranda, letters to agency, studies, and pamphlets produced by or for the committee ○ responses from agency to committee regarding recommendations ○ committee presentations or briefings of findings ● records created by committee members: <ul style="list-style-type: none"> ○ correspondence documenting discussions, decisions, or actions related to the work of the committee (excluding administrative or logistical matters), including electronic mail, exchanged between one or more committee members and/or agency committee staff (such as the Designated Federal Officer) ● records related to research collected or created by the committee: <ul style="list-style-type: none"> ○ records relating to research studies and other projects, including unpublished studies, reports, and research materials (may include electronic data) ○ raw data files created in connection with research studies and other projects where the information has been consolidated or aggregated for analyses, reports, or studies ● documentation of advisory committee subcommittees (i.e., working groups, or other subgroups): <ul style="list-style-type: none"> ○ records relating to the formation of the subcommittee or working group, if they exist 		

Item	Records Description	Disposition Instruction	Disposition Authority
	<ul style="list-style-type: none"> ▪ decision documents ▪ membership ▪ statement of purpose or other documentation of duties and responsibilities ○ records that document the activities of subcommittees that support their reports and recommendations to the chartered or parent committee. This documentation may include, but is not limited to: <ul style="list-style-type: none"> ▪ meeting minutes ▪ transcripts ▪ reports ▪ briefing materials ▪ substantive correspondence, including electronic mail, exchanged between one or more subcommittee members, any other party that involves the work of the subcommittee, and/or agency committee staff (such as the Designated Federal Officer) ▪ background materials • records related to committee termination (i.e., email, letter, memo, etc.). • other records documenting decisions, discussions, or actions related to the work of a committee, including information on committee websites not captured elsewhere in committee records. <p>Note: Sponsoring agencies need to designate the recordkeeping copy of permanent committee records. Only one copy of the records should be the official recordkeeping copy that is transferred to NARA. Committee records should be arranged by committee, not by the type of record (e.g. NARA should not receive a collection of charters for multiple committees; original charters should be transferred with the other permanent records related to the committee, regardless of where they are maintained).</p>		
020	<p>Substantive Audiovisual Records (Non-Grant Review Committees)</p> <p>Exclusion: This item does not include records of committees whose sole purpose is grant review. See item 030 for these records.</p> <p>Records include:</p> <ul style="list-style-type: none"> • audiotapes, videotapes, and/or other recordings of meetings and hearings not fully transcribed • captioned formal and informal analog or digital photographs, and any related finding aids, of committee members and staff, meetings, or hearings • posters (2 copies) produced by or for the committee 	Permanent. Transfer when records are 3 years old or upon termination of committee, whichever is sooner.	DAA-GRS-2015-0001-0002

Item	Records Description	Disposition Instruction	Disposition Authority
030	<p>Grant Review Committee Records Committee establishment, membership, and meeting records related to FACA committees whose only activity is review of grant proposals. (See item 010 for further definition of committee records.) This also includes digital and analog recordings of meetings, photographs, posters and other audiovisual materials.</p> <p>Note: If the committee performs additional functions or activities other than review for grants, it should apply the items for all other FACA committee records.</p>	Temporary. Destroy upon termination of committee.	DAA-GRS-2015-0001-0003
040	<p>Committee Accountability Records Records that document financial and ethics accountability, such as records documenting financial expenditures associated with the functioning of the committee and financial disclosure and conflict of interest documents. Records include:</p> <ul style="list-style-type: none"> • travel costs • committee member payments • meeting room costs • contractor costs • Federal Register notice costs <p>Exclusion: Forms filed under the Ethics in Government Act (see note).</p> <p>Note: Forms filed under the Ethics in Government Act are scheduled in GRS 2.8, Employee Ethics Records. These forms may apply to committee members designated as special Government employees (SGEs).</p>	Temporary. Destroy when 6 years old. Longer retention is authorized if required for business use.	DAA-GRS-2015-0001-0004
050	<p>Non-substantive Committee Records Records related to specific committees that are of an administrative nature or are duplicative of information maintained elsewhere.</p> <ul style="list-style-type: none"> • drafts and copies of Federal Register notices • audiotapes and videotapes of committee meetings and hearings that have been fully transcribed or that were created explicitly for the purpose of creating detailed meeting minutes (once the minutes are created) • photographs of committee social functions, routine award events, and other non-mission-related 	Temporary. Destroy when superseded, obsolete, no longer needed, or upon termination of the committee, whichever is sooner.	DAA-GRS-2015-0001-0005

Item	Records Description	Disposition Instruction	Disposition Authority
	<p>activities</p> <ul style="list-style-type: none"> records relating to logistical or administrative aspects of committee meetings and activities such as meeting location and access, phone line or internet connections, IT support concerns, etc. routine correspondence: <ul style="list-style-type: none"> correspondence (including intra-agency, with committee members, or the public) regarding logistics (e.g., agenda planning, meeting arrangements, administrative issues) public requests for information Non-substantive committee membership records, including: <ul style="list-style-type: none"> Resumes, curriculum vitae, or biographical information for individuals who are considered or nominated for a committee but are never appointed or invited to serve on a committee Member credentials (resumes or biographies) Member files (personnel-type records) Non-substantive web content <p>Note 1: Consult with the appropriate agency staff (i.e., records officials, general counsel) to ensure the records designated in this category are accurately designated as administrative.</p> <p>Note 2: Records on agency websites that are duplicative of records maintained elsewhere and that are not designated as the recordkeeping copy may be destroyed subject to GRS 5.1, item 020.</p>		
Committee Management Records			
060	<p>Committee Management Records</p> <p>Records created and/or maintained by Committee Management Officers (CMOs) and their staff related to the overall management of committees for an agency. These records may pertain to specific committees or to the committee management function in general. Records include:</p> <ul style="list-style-type: none"> agency guidelines correspondence requests for approval of committee nominees copies of records about committees maintained for reporting purposes, such as: <ul style="list-style-type: none"> information provided to GSA Secretariat for annual comprehensive reviews statistical data files and reports annual reports to the Library of Congress describing the agency's compliance with the 	<p>Temporary. Destroy when 3 years old, 3 years after submission of report, or 3 years after superseded or obsolete, as appropriate. Longer retention is authorized if required for business use.</p>	<p>DAA-GRS-2015-0001-0006</p>

Item	Records Description	Disposition Instruction	Disposition Authority
	<p>Government in the Sunshine Act</p> <ul style="list-style-type: none"> ○ financial operating plans and final cost accountings <p>Note: This item does not apply to the reporting database or records maintained by the General Services Administration (GSA) Committee Management Secretariat for oversight purposes.</p>		

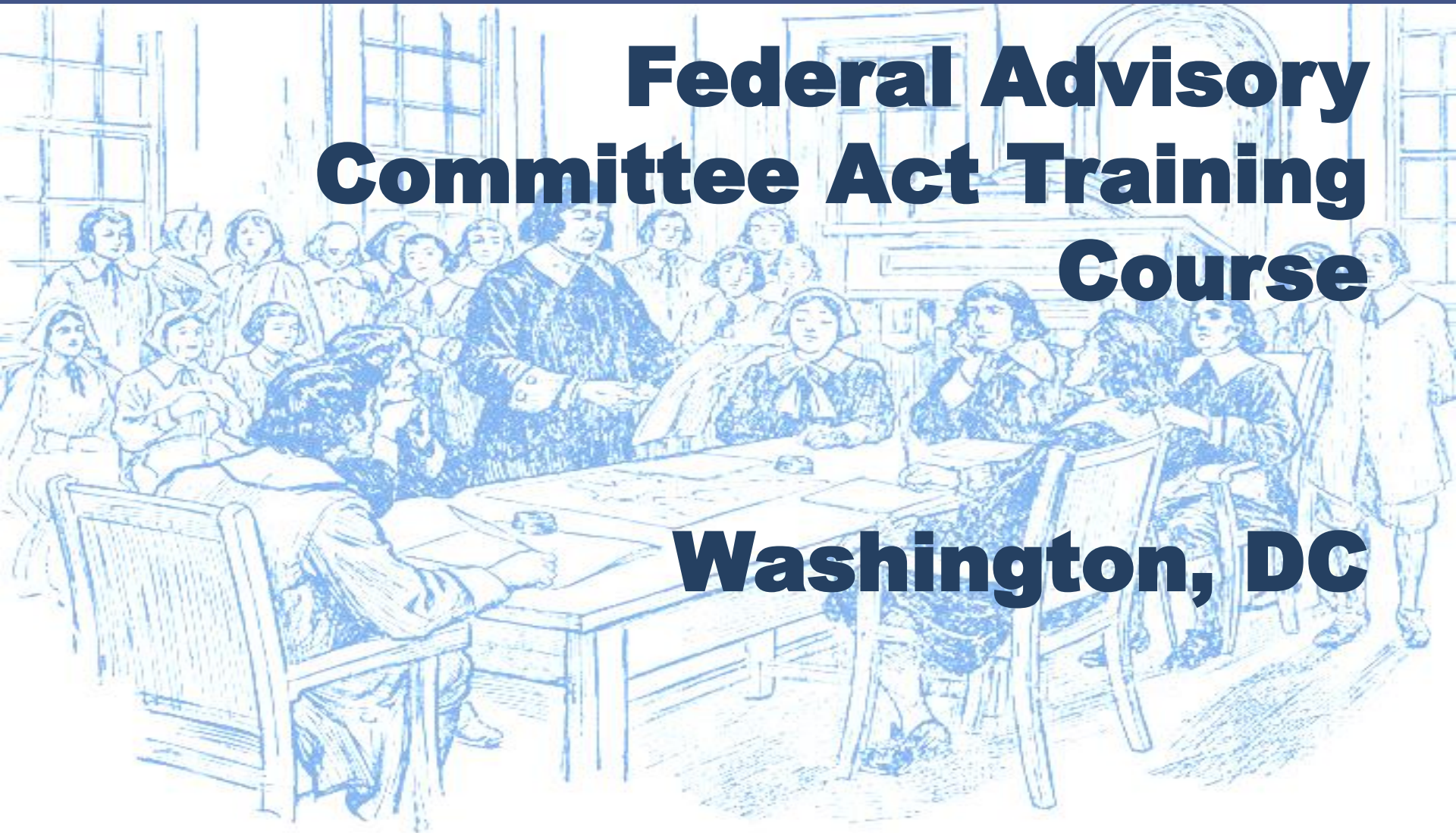
Exhibit 16



U.S. General Services Administration

Federal Advisory Committee Act Training Course

Washington, DC





Subcommittees

- **Whether subcommittees are open to the public or not, the agency must:**
 - **Designate a subcommittee DFO**
 - **Appoint subcommittee members**
 - **Comply with recordkeeping requirements (i.e., minutes)**
 - **Allow public access to subcommittee records**

Exhibit 17



RTCA, Inc.
1150 18th Street, NW, Suite 910
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September 11, 2017

Daniel Elwell, Deputy Administrator/Chief NextGen Officer
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Dear Deputy Administrator Elwell:

On behalf of Drone Advisory Committee (DAC) Chairman, Brian Krzanich, President & CEO of Intel Corporation, I am pleased to convey the interim recommendations from the July 21st meeting of the DAC.

The attached interim report (including the recommendations) was approved during the meeting (and is attached). This interim report primarily makes recommendations about funding sources for the next 24 months (defined as “near term”), considers what activities should be prioritized, and who should be responsible for funding UAS integration activities (Appendix 1). Consensus was reached on the following points, (included in the attached report):

- All regulations, policies, and standards necessary in the next 24 months should be developed primarily by the Federal Aviation Administration (FAA), with significant industry input. We recommend that Congress appropriate additional funding and increase FAA staffing to address this ambitious work schedule.
- The research and development, and system development necessary in the next 24 months, should be shared between government and industry.
- Communications, outreach, and training necessary in the next 24 months should be shared between government and industry, depending on the activity.
- Any recommended funding structure should not alter the current structure of funding for traditional, manned aviation.
- In the future, the UAS industry may be expected to pay for the operation, maintenance, and modernization of an automated Unmanned Traffic Management (UTM) system through a yet-to-be-created “pay-for-what-you-use” funding model.

The final version of this report will include “long-term” recommendations and is set to be finalized in early 2018. The DAC continues to develop recommendations for the FAA that will be reviewed at the next Drone Advisory Committee meeting in November of 2017. We look forward to working with you and your office in the ongoing work related to integration of unmanned systems into the National Airspace System.

Sincerely,

Margaret Jenny
President

July 17, 2017

Attachments:

- Interim Report of the Drone Advisory Committee on *Funding the Integration of UAS into the National Airspace*

Exhibit 18

From: John Davisson davisson@epic.org
Subject: EPIC Drone Advisory Committee Records Inquiry
Date: March 20, 2018 at 5:09 PM
To: daniel.elwell@faa.gov, david.w.freeman@dot.gov, asecen@rtca.org, info@rtca.org
Cc: Alan Butler butler@epic.org, Jeramie Scott jscott@epic.org, Marc Rotenberg rotenberg@epic.org

JD

Dear Mr. Elwell (or current Drone Advisory Committee DFO),

I am writing on behalf of the Electronic Privacy Information Center ("EPIC") to obtain access to the records of the Drone Advisory Committee ("DAC") and DAC subcomponents.

Specifically, EPIC is seeking to access all "records, reports, transcripts, minutes, appendixes, working papers, drafts, studies, agenda, or other documents which were made available to or prepared for or by" the DAC or any DAC subcomponent. 5 U.S.C. App. 2 § 10(b). Under the Federal Advisory Committee Act ("FACA"), such records must be made "available for public inspection and copying[.]" *Id.*

Section 10(b) of the FACA also requires the DAC to proactively make such records available. *Id.* A committee or agency "may not require members of the public or other interested parties to file requests for non-exempt advisory committee records under the request and review process established by section 552(a)(3) of FOIA." 41 C.F.R. § 102-3.170; *see also Food Chem. News v. HHS*, 980 F.2d 1468, 1469 (D.C. Cir. 1992).

Please note that the FACA's disclosure mandate applies to the records of the Drone Advisory Subcommittee ("DACSC"), DAC Task Groups, and any other subcomponent of the DAC. See FAA, *Charter for RTCA, Inc.* ¶¶ 8, 14 (2017); NARA, *General Records Schedule 6.2: Federal Advisory Committee Records* (2016); GSA, *Federal Advisory Committee Act Overview* 192 (2017) ("Whether subcommittees are open to the public or not, the agency must . . . Comply with recordkeeping requirements (i.e., minutes)" and "Allow public access to subcommittee records.").

EPIC is aware that a handful of DAC records have been published at <https://www.rtca.org/content/meeting-archives-dac>. However, these records constitute only a small subset of the records which the DAC is obligated to make available. For example, [rtca.org](https://www.rtca.org) lists no meeting minutes or agendas for the DACSC or the DAC's working groups.

Please direct EPIC to the URL or location where the full collection of DAC and DAC subcomponent records is available for public inspection and copying. Thank you for your prompt attention to this matter.

Sincerely,
John Davisson

--

John Davisson
Counsel*
Electronic Privacy Information Center
1718 Connecticut Ave. NW
Washington, DC 20009
Office: 202.483.1140 x120
Cell: 202.997.2254
<https://www.epic.org/>

*Member of New York bar; serving as Counsel under D.C. Ct. App. R. 49(c)(8) while application to District of Columbia bar is pending.

Exhibit 19



November 8th, 2017

Brian Krzanich
Chair, Drone Advisory Committee
c/o RTCA
1150 18th Street NW, Suite 910
Washington, DC 20036

Dear Mr. Krzanich,

Regrettably, I will not be able to attend this meeting of the Drone Advisory Committee in Seattle, but Andres Power, a senior member of my staff, will appear on my behalf.

As my office has communicated to members of Task Group 1, the DAC subcommittee, and RTCA on multiple occasions, I have strong concerns over the process guiding Task Group 1's work and the recommendations produced as a result. As such, I urge the DAC to send back Task Group 1's work product and urge that the Task Group be reconstituted to better reflect a balance of perspectives.

Over the past year, Task Group 1's process has been marred by a lack of transparency and poor management. These concerns include a lack of agendas, last minute rescheduling of meetings, failure to have minutes of any proceedings, conflicting advice and guidance by RTCA and requirements to sign documents that public employees cannot sign. Additionally, there is a stark imbalance of perspectives and viewpoints favoring industry interests at the expense of local and state governments and members of the public. Because the process was flawed, the recommendations produced by that process are also flawed.

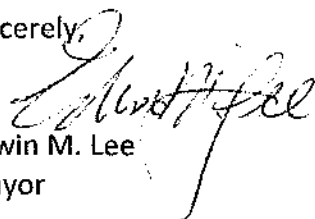
San Francisco supports innovation. This has been an important tenant of my administration. But in supporting innovation, we must also be mindful that the real interests of our residents are protected. The ability to reasonably regulate to ensure public safety, privacy, and to minimize public nuisance are cornerstones of the role of local government, and I do not believe that the Common Principles, as presented to the DAC, adequately ensure that this cornerstone is protected. In fact, by calling these principles "Common Principles," RTCA and the subcommittee ignore the fact that all entities representing state and local interests dissented on four of the most significant nine principles. The DAC, in its inaugural meeting, provided clear direction that the work produced and advanced to the FAA ought to be consensus in nature. Of the nine common principles, four had no consensus.

For these reasons, I cannot support the language being presented at today's meeting of the DAC. Although we worked closely with Task Group 1 in an effort to further develop consensus, the work has been misrepresented. Despite assurances that only consensus views would be presented, areas of disagreement have been presented and relegated to an alternative position. The language developed by some Task Group 1 stakeholders – which largely excludes any local voices – instead advanced as the majority position. This is not what a consensus process should be and I would strongly encourage that any report forwarded to the FAA remove any mention of consensus in Task Group 1.

In San Francisco, we believe that an inclusive process leading to recommendations is as equally important as the recommendations themselves. Without that inclusiveness, there is little chance for widespread support of outcomes.

I encourage the DAC, in the spirit of the original mandate of the FAA, to reconstitute its participant bodies to better reflect the real and legitimate interests of an array of stakeholders, including local and state government. Furthermore, I ask that a more structured, transparent, and equally accessible process be put in place to guide the development of broadly supported recommendations.

Sincerely,

A handwritten signature in black ink, appearing to read "Edwin M. Lee", written over the printed name and title.

Edwin M. Lee
Mayor

Exhibit 20

The Washington Post

Transportation

A U.S. drone advisory group has been meeting in secret for months. It hasn't gone well.

By **Michael Laris** October 23, 2017

A government advisory group has been holding confidential meetings to shape U.S. policy on drones, deliberating privately about who should regulate a burgeoning industry that will affect everything from package delivery to personal privacy.

The federal group includes industry insiders with a financial stake in the outcome and is co-chaired by a lobbyist for DJI, a Chinese drone maker that dominates the U.S. market. In January, the Federal Aviation Administration asked the group to figure out what influence state and local governments should have over drones in their communities.

The closed proceedings are billed as a way to promote thoughtful and unguarded exchanges — and eventual consensus — among government, community and industry interests. Instead, the process has been riven by suspicion and dysfunction, according to internal documents and emails obtained by The Washington Post, and interviews with participants.

One U.S. official, who spoke on the condition of anonymity to discuss the group's inner workings, said he found it “very bizarre” to have a representative of a “multibillion-dollar Chinese drone manufacturer” helping guide such a sensitive U.S. policy exercise

— and doing it “out of the public eye.”

“I don’t think it set a wonderful tone,” the official said.

The group — formally known as Task Group 1 of the Drone Advisory Committee — is now teetering. Months of tensions came to a head recently when an FAA contractor that manages the group told members they had to sign a far-reaching confidentiality agreement to keep participating.

After some raised concerns, several groups were blocked from receiving draft documents meant to represent their own “common ground” positions, emails show.

“Please do not distribute this material to other TG1 members,” an executive from the FAA contractor wrote in an email.

In response to this and other issues, John Eagerton, chief of Alabama’s aeronautics bureau and a co-chair of the group; San Francisco Mayor Edwin M. Lee (D); a representative of the University of Oklahoma; the National League of Cities; the National Association of Counties; and the National Conference of State Legislatures emailed a “statement of dissent” to other group members last month.

“Despite good faith efforts to engage in Task Group 1, many of us have been obstructed from meaningful participation and we all have serious concerns about the recommendations included in the draft reports,” they wrote.

Melanie Sloan, a former federal prosecutor and senior adviser for the accountability group American Oversight, said the closed-door approach appears to violate open-meetings provisions of the Federal Advisory Committee Act.

“Americans should be aware of the advice the government is relying on in making decisions that affect us all. That’s why the advisory committee rules require transparency, so we are in on the process,” she said.

In a statement, the FAA said the act requires that a committee’s recommendations, and the meeting where they are presented to the FAA, be public. But it said there is a

legal distinction between a “committee” and a subcommittee or task group. Lower-level panels generally “keep their conversations confidential to encourage open discussions and debate among the members,” it said.

Since early last century, the federal government has ruled the United States’ “navigable airspace.” But the proliferation of cheap and powerful drones that can buzz through the air much closer to the ground than a Boeing or a Cessna has spawned a fundamental debate over who should control the airspace at “ultra-low altitude” — under 400 feet.

The policy issue at the heart of the discord is whether Washington should cede localities the power to regulate when, where and under what conditions drones can fly. Cities and states generally are prohibited by federal law from doing so, although there are exceptions, according to the FAA.

The FAA says measures such as altitude restrictions and flight bans are under its control. But local and state governments have long-standing “police powers,” so banning voyeurism using drones or requiring police to get a warrant for overhead surveillance are appropriate for a city or state lawmakers, it says.

That leaves a lot of gray.

The Trump administration is preparing to launch “a pilot program designed to let local communities try different regulatory concepts for controlling drone activity,” Transportation Secretary Elaine Chao told a drone conference in Fargo, N.D., in May.

Details of the pilot program could be disclosed soon.

Task Group 1 was assigned a difficult and high-pressure job, said Dan Elwell, who advised Chao on aviation and is now FAA deputy administrator.

The FAA “gave them the ocean and said, ‘Boil it,’ ” Elwell said. But it is not the agency’s role to manage the inner workings of the advisory group, he said. “We let them do their

thing. If we meddle, if we get in there, they're not advising us."

The deliberations have at times been ugly.

"This process feels like a sham, and highlights the fact that this is the full time job for the industry lobbyists, while the rest of us, myself included, have other jobs," wrote James L. Grimsley, director of the Center for Applied Research & Development at the University of Oklahoma, and a member of the task group.

In an April email, Grimsley said drone behemoth DJI — whose lobbyist, Brendan Schulman, co-chairs the task group — has financial and lobbying ties with other group members, essentially creating a voting bloc with shared positions.

He said industry interests were overrepresented and pointed to the role of PrecisionHawk, a DJI partner and drone-technology firm, and Amazon, which is aggressively pursuing airborne package delivery. Amazon declined to comment. (Amazon chief executive Jeffrey P. Bezos owns The Washington Post.)

Grimsley, an associate vice president at the university, also helped found a drone-technology company. In an interview, he said he regrets that his email, written in frustration, became public, and said that it is "probably not a fair perspective on the entire task group."

University lawyers wrestled with the confidentiality agreement for weeks before finally allowing him to sign, he said. "There is a problem with some state and local governments signing" such agreements, because of open meetings laws in their jurisdictions, he said. "If you don't see the documents, you have a hard time having the conversations."

The materials have since been released to all members, whether or not they signed, according to the FAA consultant. Members are preparing to report to the FAA's broader drone advisory committee at a public meeting Nov. 8, hosted by Amazon in Seattle.

Other task group members have included Facebook, which is developing drones to

provide Internet service; American Airlines; and representatives of airports, airport executives, aerospace industries, air traffic control advocates, private pilots, hobbyists and others.

Grimsley was not alone in focusing on Schulman. Margaret Jenny, the president of RTCA, Inc., the contractor that oversees the task group for the FAA, sought unsuccessfully this year to oust Schulman from his role as co-chair. She wrote that her rationale was “to decrease the chance that the final product could be questioned.”

In an interview, Jenny said the decision to try to remove Schulman had been made jointly with the FAA and was spurred by a “perception issue.” It would be better, they concluded, “if we had somebody who was representing a U.S. firm” and whose “main role” was not that of a lobbyist, she said.

The group voted to keep Schulman in place.

Schulman, in an April email to the group, said Grimsley's missive was “riddled with falsehoods and is frankly offensive.”

“It is no secret or sham that my job is to work on drone policy; it is in my title,” Schulman, vice president for policy and legal affairs for DJI, wrote. “I think that's why I have useful expertise in trying to solve problems, and am motivated to work hard with other stakeholders on consensus solutions.”

Schulman declined to answer questions about Task Group 1 but said broadly: “We advocate for responsible regulations around the world and at different levels of government, and if we consider something to be unreasonable we may engage in advocacy. That's true for any company in any industry.”

Some cities have jumped into the breach to test federal limits.

Newton, Mass., passed an ordinance last year banning drone flights below 400 feet over private property, and above city property at any altitude, without permission. It is

one of hundreds of laws touching on drones around the country.

Given community concerns about drones whirling overhead and the nation's need to facilitate air travel, "where does the right to travel bump up against the city's ability to protect its residents from harm?" said Newton assistant city solicitor Maura O'Keefe.

She got a partial answer last month when a federal judge tossed out the restrictions.

Having a single, clear authority over the nation's airspace has for decades generally been viewed as a good thing, both for commerce and the safety of the flying public. But millions of drones have now been sold, and they look to become more pervasive.

"Really, the crux of this is: How do we allow a fascinating and very useful and worthwhile technology to grow safely and with the proper level of oversight and security?" the FAA's Elwell said. "We have to be very, very careful not to be so burdensome that it stifles the industry and it goes out of our borders to find success — or to be so sort of laissez-faire with it that we end up with unintended consequences."

Some in Congress, including Sen. Dianne Feinstein (D-Calif.), have sought to guarantee that local and state governments have power to impose "reasonable restrictions" on drones below 200 feet, or within 200 feet of a structure.

That could include limits or bans on flights near public or private property and to protect privacy or lessen noise pollution, according to Feinstein's Drone Federalism Act.

Industry advocates say that allowing a "patchwork" of thousands of local regulations would snuff out the promising commercial drone industry. The Association for Unmanned Vehicle Systems International and the Consumer Technology Association, both members of Task Group 1, filed a court brief opposing the law in Newton.

Drone industry representatives, meanwhile, have sought federal legislation further limiting what states are allowed to regulate and have pushed states to enact their own "preemption" laws preventing their cities or counties from regulating drones.

“Rhode Island is a small place. You don’t want to shut the door to a new technology,” said Stephen Ucci, a state legislator and member of Task Group 1 who supported the state’s preemption law so there would be “one uniform standard” for a technology that is both promising and polarizing.

“People either view things as cool or creepy. The ‘creepy’ people don’t want them anywhere around, and the ‘cool’ people want to see them everywhere,” said Ucci, a corporate lawyer. Task Group 1 put “really smart people in a room that know a lot about this topic,” and their deliberations “are great for the country and the industry,” he added.

Jenny, in a Sept. 22 email circulating among some members, said organizers should “stand down” Task Group 1 and give its materials to a “newly constituted group” with a new mandate.

“I’m not willing to continue down this painful path that cannot lead to a good outcome with an unbalanced group,” she wrote.

 **72 Comments**

Michael Laris writes about the transformation of the U.S. transportation system. He previously covered government accountability and was a reporter based in Beijing.

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Exhibit 21

The Washington Post

Transportation

Federal drone advisory panel knocked for 'lack of transparency and poor management'

By **Michael Laris** November 8, 2017

Federal advisers met Wednesday to try to advance U.S. drone policy, with some offering concrete suggestions for opening the nation's skies and others decrying months of dysfunction and mismanagement they say has tainted the advisory process and some of the materials being presented.

The meeting of the Drone Advisory Committee — whose charge is to advise the Federal Aviation Administration on the burgeoning industry — comes two weeks after President Trump signed a memorandum intended to broadly expand how drones are used in the United States using a new pilot program.

San Francisco Mayor Edwin M. Lee (D), in a sharply worded letter distributed to the group headed by Intel chief executive Brian Krzanich, cited the "lack of transparency and poor management" of one of the committee's subgroups. In January, the FAA gave that panel, known as Task Group 1, the difficult job of determining what role federal, state and local officials should play in regulating drones buzzing over communities at low altitudes.

"There is a stark imbalance of perspectives and viewpoints favoring industry interests at the expense of local and state governments and members of the public," Lee's letter

said. "Because the process was flawed, the recommendations produced by that process are also flawed."

The Washington Post reported last month that Task Group 1 has held months of confidential meetings, which some critics said could violate the Federal Advisory Committee Act, and that the proceedings had been riven by distrust and accusations of outsize industry influence.

A presentation prepared for Wednesday's meeting, posted on the advisory committee website and marked "final," listed nine "common principles" developed by Task Group 1. But there was no consensus on four of those principles, participants said.

Those four — covering how drones could impact private property rights, how takeoffs and landings should be regulated, how altitude measurements might be taken, and the role of local governments in overseeing safe drone equipment and operations — were each, confusingly, listed a second time in the presentation as a "common principle" with an "alternate opinion response."

That prompted Lee to allege that "the work has been misrepresented."

A representative of RTCA, a contractor that manages the group for the FAA and bills itself as a public-private expert in developing consensus on aviation, declined to answer questions.

But responding to an outpouring of criticism from members of Task Group 1, RTCA created a second version of the final slide presentation for display at the session Wednesday, with clearer language listing "Option 1" and "Option 2" on principles where there was disagreement.

The damage was done, however.

"This is not what a consensus process should be," Lee wrote. "The ability to reasonably regulate to ensure public safety, privacy, and to minimize public nuisance are cornerstones of the role of local government," and the principles presented do not protect that cornerstone, he said.

After a top Lee aide read parts of the letter, Brendan Schulman, a lobbyist with Chinese drone manufacturer DJI who co-chairs Task Group 1, rejected the mayor's critique. Schulman describes his leadership role as constructive and inclusive. "The mayor's letter couldn't be more wrong about the task group process," Schulman said in a statement. "We have been welcoming of broad participation from the beginning."

The issues at stake are vast, touching on questions of federalism, surveillance and security — and an industry worth billions. While the federal government controls the nation's "navigable airspace," local officials have long had police powers over such crimes as voyeurism and control over land-use issues. Finding the balance between those without suppressing innovation or undercutting public safety has been a major challenge.

FAA Deputy Administrator Dan Elwell told the advisory committee, which was hosted by Amazon in Seattle, that Task Group 1 had been given "a seemingly impossible task."

"The lack of consensus with Task Group 1 was neither unexpected nor a fatal flaw. Congress itself couldn't reach agreement on many of the questions we asked of you," Elwell said.

Elwell said Task Group 1 will be reconstituted and given a new job away from policy and politics. Instead, it will be asked to provide "the technical and operational recommendations we need to implement the pilot program" Trump administration officials announced last month.

Under the pilot, states and localities, teamed with industry, can apply to do things with drones that are not generally allowed under FAA rules. Those include flying at night, over people or out of the range of what the operator can see.

Elwell said the pilot "will create a mechanism for the private sector and state, local and tribal governments to make experience-based and data-driven contributions to integrating drones."

An FAA official said Wednesday that 633 entities — among them cities, counties, academic institutions and emergency responders — have indicated they plan to apply

for the pilot program.


Task Group 1 members have included Amazon, which is pursuing drone package delivery; Facebook, which is developing drones as part of an Internet service; American Airlines; which has assorted aviation industry interests; and representatives of state and local governments. (Amazon chief executive Jeffrey P. Bezos owns The Washington Post.)

One point of agreement amid the discord on the group was that a public process, including things such as hearings and notices, should be used to make sure any possible regulations are reasonable.

A second Drone Advisory Committee panel, Task Group 2, pushed forward Wednesday with its recommendations that the FAA create a program easing the way for companies to fly drones far beyond a controller's "line of sight." Such operations are required for the kind of delivery services and other commercial efforts that have captured the imagination of industry.

 **5 Comments**

Michael Laris writes about the transformation of the U.S. transportation system. He previously covered government accountability and was a reporter based in Beijing.

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