Drone Advisory Committee (DAC) Meeting Minutes
January 31, 2017 – University of Nevada at Reno

List of Attachments:

- Attachment 1 – Attendees
- Attachment 2 – FAA Update Slides
- Attachment 3 – Task Group 1 (Roles and Responsibilities) Tasking Statement Presentation Slides
- Attachment 4 – Task Group 2 (Access to Airspace) Tasking Statement Presentation Slides
- Attachment 5 – Written statement from the Honorable Ed Lee, Mayor of San Francisco, CA
- Attachment 6 – Task Group 3 (UAS Funding) Tasking Statement Presentation
- Attachment 7 – FAA DFO Remarks

Opening Remarks:

The second meeting of the DAC was called to order at 9:00 AM on January 31, 2017, in Reno by Chairman Brian Krzanich of Intel, who thanked the FAA for creating the forum. Mr. Krzanich stated that Federal Aviation Administration (FAA) Administrator Michael Huerta was unable to attend and sends his regrets. He thanked FAA leaders Earl Lawrence, Hoot Gibson, Lynn Ray, and others for their support and dedication to this initiative. He also thanked the hosts: Reno Airport Authority (DAC member, Marily Mora) and University of Nevada, and welcomed new DAC member, James Burgess of [X]. He recognized the DAC Subcommittee (DACSC) Co-Chairs Bryan Quigley and Nancy Egan for leading the creation of the Task Groups (TG) 1 and 2 and thanked the leads (Brendan Schulman of DJI and Dr. John Eagerton of the Alabama DoT - TG1; Rob Hughes of Northrop Grumman Corporation and Sean Cassidy of Amazon Prime Air – TG2). He then introduced the TG3 leads (Mark Aitken of AUVSI and Howard Kass of American Airlines). He called for the session to be interactive - asking the members to be active in the conversation.

Designated Federal Official (DFO) Statement

The DFO statement was read by Victoria Wassmer, Acting Deputy Administrator of the FAA at 9:06 AM.

Approval of Minutes

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

Presenters: Ms. Victoria Wassmer, FAA Acting Deputy Administrator, Mr. Earl Lawrence, Director, Unmanned Aircraft Systems (UAS) Integration Office; Hoot Gibson, Senior Advisor, UAS

- Victoria Wassmer provided opening remarks. Her remarks included an update on FAA and transition activities as well as the FAA budget and reauthorization. She discussed the FAA record of achievement on unmanned aircraft to date and upcoming work on drones, including operations over people. She stressed the importance of the DAC to build consensus around our work and the DAC’s opportunity to shape the future of unmanned aircraft in America. She mentioned the work done since the September DAC meeting has provided a framework for future discussions. She then introduced the Task Group working with Roles and Responsibilities, the Task Group working Access to Airspace, and Task Group that will be working Funding.

- Earl Lawrence provided an update on the UAS Integration efforts.

- Mr. Lawrence discussed the management of stakeholder engagement, the Unmanned Aircraft Safety Team education and registration statistics, part 107 webinars, air traffic facility maps and the pending certification basis.

- Mr. Gibson provided a discussion of the UAS ExCom, airport detection, and DAC Meeting objectives as introduced at the first DAC Meeting.

- Victoria Wassmer’s remarks and the FAA presentations are attached to this summary.

DACSC Co-Chair Overview of Work and Task Statements

Presenters: Bryan Quigley, DACSC Co-Chair, and Chief Pilot, United Airlines; and Nancy Egan, DACSC Co-Chair, Advisor to CEO, 3D Robotics

Summary

- Mr. Quigley and Ms. Egan introduced themselves and discussed the purpose and scope of the DACSC.

- Co-Chair Quigley introduced the member organizations and the leadership of the DACSC. He explained the accomplishments of the DACSC and summary of the activities of the DACSC. He then explained the DAC starting point and how the TGs were formed from the survey results of the first DAC.

- Co-Chair Quigley asked Mr. Gibson to address “interdiction” and how it maps to the FAA core competencies. Mr. Gibson reported that the FAA is in aviation safety business, not counter
measures against drones, but and is joining forces with other agencies to address the issue. FAA has a role in identification and tracking of UAS but not necessarily in interdiction.

- Co-Chair Egan explained how risk-based paradigm informed the recommendations to keep the DACSC products relevant and timely. Co-Chair Egan indicated that the DACSC is breaking the work into incremental pieces - they don’t want to jump too far ahead or be too far behind. The team is using the evolutionary construct to keep recommendations relevant and timely.

Report out of DACSC TG1 (Roles and Responsibilities)

Presenters: Brendan Shulman, TG1 Co-Chair, and Vice President of Policy & Legal Affairs; John Eagerton, TG1 Co-Chair, and Chief, Aeronautics Bureau Alabama Department of Transportation.

Summary

Brendan Schulman and Dr. John Eagerton provided a brief of the TG1 recommendations

- The Co-Chairs introduced themselves and the members of TG1 and discussed the purpose of the TG.
- Co-Chair Schulman discussed the approach that the TG took to complete its work, including the research they conducted.
- Co-Chair Eagerton discussed the TG1 findings that came out of the research efforts. He also discussed the draft tasking statement deliverable of the TG.
- Co-Chair Schulman and Eagerton alternately provided a summary of the draft task statement recommendations in low altitude UAS navigable airspace; relative roles and responsibilities of Federal, state, local governments; enforcement; education; technological tools and solutions; and local government operational issues.
- Co-Chair Schulman presented the expected activities in the near-term, intermediate-term, long-term, and interim time frames.

Discussion of Recommendations TG1

- Comment: For material to be ready for a May DAC Meeting, material must be ready by the end of March.
  Response: TG1 accepts the challenge to get it all ready by March.
- Question: Co-Chairs asked whether the DAC could meet more frequently than three times a year.
  Response: This is not likely to happen. Dates are set for 2017.
- Question: Is there an opportunity to create a survey for state and local governments to gather input on what they see as their high-priority challenges?
• Response: This will be put on the agenda for the next TG1 meeting.
• Question: Does a DAC-sponsored poll require approval by the DAC?
• Response: No. RTCA will assist in developing a public poll.
• Question: We don’t have a clear understanding of the state and local governments’ real concern or interests; their number one concern. We need to prioritize first, then address high priority topics. (e.g., FAA – centralized operations, request for waivers. Who do I need to inform (local police?) to get an operations approved from FAA in Washington, DC? A gap exists between FAA and state and local governments. We want to see more information/data on the priorities state and local governments want us to address.
• Response: Important questions raised – more work is required to answer this. The result of a closer look at these questions and the results of the survey could become a report out at the next DAC meeting.
• Question: There is concern with the volume of current and potential legislation for UAS - what will prevent the legislation from morphing into laws that affect manned aircraft? What is the FAA’s view of this situation where municipalities are creating rules that affect navigable airspace?
• Response (from FAA) - Many good questions are being raised. We have a system that works today.
• Comment: Recommendations can be written to apply only to unmanned aircraft. No presupposition of change in roles, but the recommendations should be written to only apply to unmanned vehicles.
• Response: The FAA has issued a legal fact sheet that provides regional contacts when questions arise. FAA will make that fact sheet available to RTCA to post on the DAC and DACSC Workspace website.
• Comment: A member expressed the need to define a set of high level tenets to which all on the DAC could agree and that could serve as guidance to the work of the TGs. For example, there is a need to look at impact of UAS in the airspace, and ask if there is an overall net positive. For example, a car driving to pick up or deliver a package is louder than a drone. Drones that inspect roofs are safer than a person climbing on one. Can you identify these tradeoffs? A list of tenets would enable us to address some ethical questions.
• Response: It was agreed that the DACSC would develop a set of tenets to bring back to the next DAC meeting. Gur Kimchi of Amazon Prime Air, will develop an initial set as input to this process. Others on the DAC agreed to provide inputs as well.
• Question: One of the recommendations was for a public statement - Is a motion required for that to take place?
• Response: Yes. We will have a discussion of the content of that potential message as part of “other business” later in the agenda.
• It was mentioned that the FAA had already released a public statement about the DAC. It was requested that RTCA make that statement available to the DAC members.
• **ACTION:** Make the FAA press release available to the DAC members – RTCA to post that today.

• Question: The issues of counter-measures were not mentioned in the slides - why?

• Response (from FAA): Review of the Task Statement (page 7) **Counter measures and other Active Responses.** The FAA does not want this issue addressed by the DAC. The FAA is working with other agencies to determine the most appropriate way forward, including how to engage industry. Mr. Gibson indicated that counter-UAS includes all spectrums of risk: 1) detection, 2) tracking, 3) identification, and 4) mitigation (kinetic or non-kinetic) and he reiterated that the FAA is not involved in interdiction. Going forward, the FAA will provide updates to the DAC from the ExCom.

• **ACTION:** It was agreed that the reference to counter-UAS should be deleted from the draft tasking statement for TG1.

• Question (audience member): How will the DAC handle risk?

• Response: The FAA indicated that for counter-UAS there is a full spectrum of risk from detection, to tracking, identification and mitigation (kinetic and non-kinetic). The FAA will not address the mitigation aspects.

• **CONSENSUS:** The Chairman asked for a motion to approve the tasking statement with the language deleted (and other caveats). The motioned carried. RTCA will include the modified tasking statement in a formal response to the FAA from this meeting.

• A statement from Mayor Lee from San Francisco was read by the director of San Francisco Airport. The statement encouraged input from local governments in structuring an Unmanned Traffic Management System. The statement is attached.

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**Report out of DACSC TG2 (Access to Airspace)**

**Presenter:** Rob Hughes, Co-Chair, TG2, and Senior Policy Advisor, Office of Independent Airworthiness, Northrop Grumman Aerospace Systems

Co-Chair Hughes presented the purpose of the TG, a listing of the member organizations, the approach that was taken in development of the material presented, a high-level calendar of deliverables and resources (Co-Chair Sean Cassidy, Amazon Prime Air, was unable to attend the meeting). The presentation is attached.

Co-Chair Hughes discussed the areas of recommendations the TG will provide, which include: 1) Roles and responsibilities, 2) Expedited UAS airworthiness and operations approvals for near-term (within 24 months) UAS missions, 3) Expedited minimum essential aircraft equipage, 4) Public/private infrastructure needs and operational requirements beyond those currently permitted under 14 CFR parts 101/107 to include information flow and interoperability considerations, and 5) Use of spectrum for command and non-payload communications.
Discussion of Recommendations TG2

- **Question:** Is the TG ready to achieve a very aggressive schedule to deliver by the end of March?
  - **Response:** Yes.

- **Question:** How is the TG going to work out the integration of small/large at the same time?
  - **Response:** The FAA has a roadmap of integration based on a functional approach. FAA does not look at altitude to decide rules. It is the function (and associated risk) of the vehicle that drives level of oversight for certification.

- **Question:** With regards to levels of service, is there an effort to allow early wins using a risk-based approach that will allow predicted levels of safety to be validated?

- **Question:** Can the timescale be shortened?

- **Question:** How does scalability work when introducing it into the real-world, and can small unmanned aerial vehicle (UAV) rules be scaled to the larger UAVs? The 24 month timeframe was picked to allow that analysis.
  - **Response:** FAA is not slowing the authorization of operations (BNSF, CNN, etc.) to accommodate the DAC.

- **Question:** What data can BNSF provide to make your job easier?
  - **Response:** The Co-Chairs indicated that they could not currently answer this question. Work needs to be done: 1) determine how to reach-out to industry, 2) identify and resolve issues with data collection and analysis, and 3) determine whether we can use collected data for to predict issues.

- **Question from the Chairman:** Do you have the right members on your team?
  - **Response:** Yes, but there is always room for more subject matter experts and observers, and we will reach out for them as needed.

- **Response from FAA:** The FAA set up three webinars to educate the members on Pathfinder Programs, and we plan to do more.

- **Comment:** The slides say expedited processes (24 months), but near-term should be shorter than 24 months. Are waivers only granted for companies that have Pathfinder programs? If Pathfinders are needed to get a waiver, we need to be clear about that. The minimum-viable products process could be dramatically improved by the FAA. The waiver process needs improvement and that could and should be done in the near-term, meaning 3 or 6 months.

- **Question:** Is there a thought to have a communication plan from TG2?
  - **Response:** That's a question left up to the DAC.

- **Question:** Is there a commitment to get a piece of spectrum allocated to the UAS?
• Response: International Telecommunications Union (ITU) decided this already. Is there other spectrum available that can be used?
• Question: Can other spectrum be repurposed? Is TG2 looking broadly at this issue?
• Response: The TG is narrowly focused.
• Response from the Chairman: The DAC would like shorter term wins - less than 6 or 12 months.
• Comment: Alternative spectrum discussion should be incorporated (performance and robustness requirements).
• Comment: If spectrum is added by default, it will limit autonomous operations in the future.
• Question: What are the communication requirements and methods needed to accomplish this?
• Comment: This spectrum could be a foundational piece that allows the progression from initial to full integration. It can be considered an enabler. We should refer to it as the broader term, communication, so we do not limit flexibility of solutions.
• Comment: Electromagnetic spectrum is a resource that is stressed; National Telecommunications and Information Administration process should be included.
• Comment: Spectrum issues already decided at the 2012 and 2015 World Radio-Communications Conference. We might need to look at how to repurpose spectrum.
• **ACTION:** Change "use of spectrum" to "methods of communications" in item 4 of the tasking statement.
• Question from the Chairman: How do we find early wins for quick adoption?
• **ACTION:** Change "aircraft" to "UAS" in item 1.
• **CONSSENSUS:** The Chairman asked for a motion to approve the tasking statement with the language modified (and other caveats). The motioned carried. RTCA will include the revised tasking statement in a formal response to FAA from this meeting.

**Presentation of DACSC TG3 Task Statement (Funding)**

**Presented:** Nan Shellabarger, Executive Director of FAA Policy and Plans

Ms. Shellabarger presented the draft TG3 Tasking Statement. Ms. Shellabarger explained that this is a more traditional way of providing tasking to a Federal advisory committee like the DAC. After receiving DAC feedback on the draft TG3 Tasking Statement, the FAA will finalize and approve the tasking statement and forward it to the DAC to execute. Ms. Shellabarger then explained the task details, the FAA funding structure, and offered the DAC items to think about before discussing the tasking statement. She highlighted the questions that will be asked of TG3:

• How much, for what, in what time frame?
• Who should pay for what?
What kinds of mechanisms can be implemented?
Do these set up incentives, or create unintended consequences?
Can we reach consensus?

Task Refinement and Discussion

- **Question**: How do we establish funding so the FAA’s UAS work does not impact certification and oversight of manned aviation?
  - **Comment**: One member warned that the term "user fees" will result in resistance from some and should be avoided.
  - **Response**: Ms. Shellabarger explained that the government has definitions of “taxes” and “fees”. Fees are levied on a specific set of users who will receive a benefit. Taxes require legislation. Typically, the FAA’s annual appropriation bill carries a prohibition on new user fees.
  - **Question**: What part of the FAA’s overhead is getting “costed” to the UAS effort. It would be helpful to see that. How do we amortize development costs over time (e.g. with NextGen), and how can we learn from those models in this space?
  - **Response**: Government does not do accrual accounting - planning for this is being laid out for future years. FAA does not have an approved 2017 budget and is currently operating on 2016 budget. The FAA is preparing now for 2018 and 2019, but government disruptions, such as sequestration, can impact the FAA’s budget and programs.
  - **Question**: Should a tenet be that the FAA should allow industry to build as much as possible of the new capabilities, such as Unmanned Traffic Management? The FAA does not have to do everything. We can federate.
  - **Comment**: How funding was done in the past may not be applicable to how it is done in the future.
  - **Comment**: We need to establish a logical model of what the FAA should fund and how.
  - **Comment**: The government does not run internet or cell networks; industry should figure this out. There is much that industry can do that FAA does not have to own.
  - **Comment**: It might be hard for this industry to do because the industry is figuring it out too. They must do this holistically and not just concentrate on commercial drones. Consumer drones are being used for commercial purposes. We should avoid segmentation of the industry.
  - **Question**: Can the FAA shed more light on the schedule of the task, and when they need responses from the DAC?
  - **Response**: The FAA wants information to inform the debate on any discussion on FAA funding and structure.
  - **Question**: Are we relying on FAA to implement these, or industry stakeholders as well?
• Question from the Chairman: Can this be broken into a couple of pieces? Is the real scope that, we need a system that gets funded using a mechanism that this industry will support, and you want TG3 to assist in defining that? If so, the description needs to be made simpler for the TG to work.

• Question: Why would the budget for drones be even close to the one for NextGen? Can’t industry do some of this?

• Response from Ms. Shellabarger: This is why we posed the first question the way we did. It takes a lot of FAA resources to implement rules (e.g. part 107). Even UTM must integrate with, and talk to, FAA systems. That costs money.

• Question: Are you looking to define a 5th fund separate from the others?

• Response: It will be integrated into the existing structure.

• Question: Do we know what the costs are fundamentally? The cost for NextGen was much better defined, and there is much to be learned from these past efforts. Do we even have a handle on what the costs are going to be? Isn’t that the question we should be asking?

• Response: We need to know the system to be implemented as well as the costs. It may be too much to ask at this point.

• Comment: This group may be “out of its element” in answering this task. There is a level of work that must be done before we take this on. A Member countered that the timeline is crucial to influencing upcoming FAA reauthorization, and needs to be discussed in this forum. Congress is already talking about new entrants, and the DAC is here and the best forum to weigh in.

• Question: Why does FAA need our input by May?

• Response: A timeline is crucial for upcoming legislation. This work will inform the FAA authorization in September 2017. We are not looking for specific amounts of funding needed by May, but rather what kinds of things to work on and what is not worth working on.

• Comment: The DAC needs to understand what it actually costs the FAA to do a proper job of this tasking.

• Comment: One member pointed out that we know how the airlines pay for services.

• Comment: This is coming one way or the other. If this body wants input in shaping it, we should start looking at the issue.

• Comment: We need to get started on it because the reauthorization cycle is coming. We should be cautious about burdening the user. We need to know how much needs to be raised and how much can be raised with commercial operators.

• Comment: There are unknowns, but there are many resources on the committee and we should at least try to answer the FAA. The FAA can be used to gather information. The timeframe is a concern; the May meeting may be too early - perhaps put in another meeting between May and October and dedicate it to this issue.

• ACTION: Virtual meeting on just this topic is allowed. RTCA will plan that.
Comment from the Chairman: The Chairman summarized that the DAC needs to look at what it costs, and look at sources for funding. We should look at what industry could take over to unburden the FAA. This might be a separate TG, to make the task of TG3 simpler. Specifically, the Chairman summarized the following:

1. 24-month timeframe: 1) what resources are needed? 2) what can industry do instead of the FAA? and 3) what fees would be needed to get that money? (only for the next 24 months);
2. Schedule a virtual meeting in August, only on this topic;
3. Have TG3 finish points 1 and 2, and start to work on structuring; this not burdened by the current methods; and
4. Work with the FAA to make modifications to the TG3 tasking statement.

The DAC approved the DACSC to go through the process of creating TG3.

Action: Add SC-228 briefing to the DAC agenda for May (obtain related materials presented to Subcommittee and then post on the DAC Workspace website).

Public Statement Discussion

The Chairman led a discussion on whether the DAC should issue its own press release regarding the work on roles and responsibilities of TG1, to inform state and local entities that this work is going on to slow the pace of local legislation regarding drones. The DAC discussed alternative approaches to communications including: 1) an FAA public statement, 2) an RTCA public statement, 3) posting on the RTCA website, or 4) TG1 to issue a public statement. A member asked other members if they would support a DAC-originated public statement. FAA statements must go through a time-consuming vetting process. The DAC could release a consensus statement, but needs to be clear that it is an advisory committee and it is up to the FAA how it acts on the DAC’s advice.

CONSENSUS: After the discussion, the Chairman summarized the following:

- The DAC will not issue its own public statement;
- The FAA should publish statements (e.g., press releases or “News and Updates”);
- Per its normal process of operating as a Federal advisory committee, RTCA will post summaries of the DAC meetings on its website;
- DAC members can spread the FAA press releases or “News and Updates” amongst their respective communities; and
- National Association of Counties will ensure anything that was discussed at the DAC meeting will be forwarded to the communities.

New Business

No new business introduced.
Date for Next Meeting

- The next (fourth) meeting of the DAC will be in Washington, DC on May 3, 2017, followed by a fifth DAC meeting on November 8, 2017, location TBD.
- The DAC will add a virtual meeting July 21st to discuss TG3 interim recommendations.
Action Items:

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<tr>
<th>Action</th>
<th>Responsible Party</th>
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<tr>
<td>RTCA will assist in developing a public poll to assist TG1 in determining the State and Local government concerns and priorities</td>
<td>RTCA</td>
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<td>Post the FAA legal fact sheet that provides regional contacts</td>
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<td>Post the FAA press release to DAC members</td>
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<td>Remove references to Counter-UAS from TG1 tasking</td>
<td>RCTA</td>
<td>Complete</td>
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<td>Develop set of basic tenets with input from Gur Kimchi, Amazon Prime Air</td>
<td>DACSC</td>
<td>May DAC</td>
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<td>Change &quot;use of spectrum&quot; to &quot;methods of communications&quot; in Item 4 of TG2 recommendations</td>
<td>RTCA</td>
<td>Complete</td>
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<td>Change the word &quot;aircraft&quot; to &quot;UAS&quot; in item 1 of TG2 recommendations</td>
<td>RTCA</td>
<td>Complete</td>
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<td>TG3 – work for this TG will include short-term and longer-term work; near term work would include determining the timeframe and determine resources that are needed, what industry can do instead of the FAA, and what fees would be needed to get that funding</td>
<td>TG3</td>
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<td>RTCA schedule virtual meeting in July only on the topic of TG3</td>
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<td>FAA to make modifications to TG3 and send to RTCA to share with DAC</td>
<td>FAA</td>
<td>Week of Feb 6</td>
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<td>Once RTCA has received tasking letter from FAA, develop and send ballot to DACSC to</td>
<td>RTCA</td>
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Adjournment:

In closing remarks, Ms. Wassmer, FAA DFO, thanked the University of Nevada, the Reno Airport Authority, and Ms. Mora for hosting the event. She thanked the members for their time and involvement in the meeting. She summarized the meeting events surrounding the Task Group 1 approval of the tasking statement and Task Group 2 task statement. She noted the work associated with creating the Task Group 3 task statement and thanked the committee for their deliberations. She continued that this was her first trip to Reno, and the natural beauty and the welcome the DAC received made everyone feel like honored guests, which contributed to the success of the meeting.

Chairman Krzanich echoed those sentiments and at 3:30 PM, adjourned the meeting. The next general meeting will be at 9:00 AM on May 3rd, 2017 in Washington, DC.

Minutes submitted by - Al Secen
Vice President Aviation Technology and Standards
Secretary of the Drone Advisory Committee
## Drone Advisory Committee Meeting Attendance

<table>
<thead>
<tr>
<th>Company</th>
<th>Name</th>
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<tr>
<td>Intel</td>
<td>Krzanich, Brian</td>
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<td>Federal Aviation Administration (FAA)</td>
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<td>Association for Unmanned Vehicle Systems I...</td>
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<td>Stanford University</td>
<td>Alonso, Juan</td>
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<td>Ambrose, Jennifer</td>
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<td>Baker, Mark</td>
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<td>Bechdolt, Anne</td>
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Victoria Wassmer

FAA Acting Deputy Administrator and Chief NextGen Officer
and
DAC Designated Federal Official (DFO)
Drone Advisory Committee

FAA UAS Activity Update

**Presented by:** Earl Lawrence, FAA UAS Integration Office Director

**Presented to:** Drone Advisory Committee

**Date:** January 31, 2017
Managing Stakeholder Engagement

- ExCom
- Unmanned Aircraft Safety Team
- Center of Excellence
- Pathfinders
- Test Sites
- DAC
- NAS Access
- Implementation Plan
- Minimum Standards
Education and Registration

UAS Registrations

- Online Commercial: 41,718
- Online Hobby: 656,776
- Paper: 6,651

Total UAS Registrations: 725,145
Part 107 Webinars

- Motion Picture Association of America
- News Media Coalition
- American Farm Bureau Federation
- Ecological Society of America
- National Mining Association
- National Association of Farm Broadcasters
- Association of Unmanned Vehicle Systems International (x2)
- Law enforcement community
More than 28,000 Remote Pilots certificated since August

More than 18,000 individuals took the Part 107 Knowledge Exam since August, with a 91% pass rate.
January 31 Drone Advisory Committee
FAA Update

### Top 5 Waiver Requests

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<td>Night Operations</td>
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<td>Operations over People</td>
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<td>BVLOS Operations</td>
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<td>Operations from a Moving Vehicle</td>
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<td>Operational Limitation: Altitude</td>
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### Airspace Waiver/Authorization Requests

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AeroVironment Puma

Certification Basis pending publication in the Federal Register
Legislative Activities

• FAA Extension, Safety and Security Act – Public Law 114-190
  – Section 2206: Airport Safety and Airspace Hazard Mitigation
  – Section 2209 – Restrictions over Fixed Site Facilities
  – Section 2213 – Probabilistic Metrics Research
  – Section 2202 – Remote ID Standards
Authorization and Notification
Drone Advisory Committee

UAS ExCom, Airport Detection, and DAC Meeting Objectives

Presented by: Hoot Gibson, FAA Senior Advisor on UAS Integration

Presented to: Drone Advisory Committee

Date: January 31, 2017
UAS Executive Committee (ExCom)

• Chartered in 2010 to facilitate public UAS integration
• ExCom / Senior Steering Group / Working Group Structure
Interagency UAS Airport Detection

Testing at DEN, November 2016
Interagency UAS Airport Detection

• **Pilot Program for Airport Safety and Airspace Hazard**
  – Mandated by Section 2206 of FAA Reauthorization
  – Requires consultation with DOD/DHS/other Federal agencies

• **Progress**
  – Testing completed at JFK, Atlantic City, Denver
  – Testing planned at Dallas-Fort Worth this spring

• **Counter-UAS Interagency Concept of Operations**
  – ExCom agreed to form interagency team to further develop a Concept of Operations to address airspace hazard mitigation
  – Effort will focus on operational issues near airports and interagency coordination
First Year DAC Objectives

• Maintain working knowledge of FAA’s UAS integration strategy and constraints
• Advise the Administrator on gaps in the FAA’s UAS integration strategy and provide recommendations
• Provide a consensus position on the FAA’s five-year UAS Concept of Operations and its priorities
• Given the FAA’s UAS integration strategy, advise on legislative strategy and priorities
Today’s Meeting Objectives

• Get FAA activity updates
• Review proposed tasking statements for three DAC Task Groups
• Provide an update on DAC Subcommittee discussions and deliverables
• Keep in mind:
  – Federal Advisory Committee operating norms
  – Group consensus is ideal
Report Out of DACSC TG1 (Roles and Responsibilities)

Co Chairs:
Dr. John Eagerton
Brendan Schulman
Alabama Department of Transportation/NASAO
DJI Technology
Members

Co Chairs:
Dr. John Eagerton
Brendan Schulman
Alabama Department of Transportation/NASAO
DJI Technology

Program Director:
Claudia Chaudhari
RTCA Inc.

Voting Members:
Mark Aitken
Association for Unmanned Vehicle Systems (AUVSI)

Justin Barkowski and Pilots
Aircraft Owners Association

Chad Budreau
Academy of Model Aeronautics

Matthew Colvin
National League of Cities

Diana Cooper
USA Inc.

Pete Dumont
Air Traffic Control Association (ATCA)

Trish Fritz
GoPro, Inc.

Ben Gielow
Amazon Prime Air

James Grimsley
University of Oklahoma

David Hansell
Facebook

Doug Johnson
Consumer Technology Association

Howard Kass
American Airlines, Inc.

Charlie Keegan
Aviation Management

George Novak
Aerospace industries Association (AIA)

Christopher Oswald
ACI North America

Kevan Stone
National Association of Counties

Justin Towles
American Association of Airport Executives
Purpose of Task Group 1

**Long-term purpose:**

- Research, Evaluate & Analyze Federal/State/Local Governing Interests in Regulating and Enforcing the Operations of Unmanned Aircraft Systems
- Serve as an Information-Gathering & Fact-Finding Resource for the DACSC & FAA on This Topic
- Make Potential Regulatory and Policy Recommendations to the DAC and FAA
Purpose of Task Group 1

Short-term purpose:

- Provide Recommended Tasking Statement to Make Sure the Scope and Content of Tasking Enables the Work Envisioned at the September 2016 DAC Meeting
How Task Group 1 Approached its Work

- At the Outset, Held In-Depth Discussions About the Principles & Concepts Relevant to our General Mission
- Reviewed a Variety of Topical Background Materials
- Received Input and Guidance from FAA Officials for Tasking Statement, Started with FAA Suggested Draft
- Subject Matter Expert (SME) Presentations
How Task Group 1 Approached its Work

Briefings from SMEs:
- City Government interests
- County Government interests
- Law enforcement interests
- Public utility services (pipelines, powerlines, etc.)
- News Media (1st Amendment Issues)
- UAS Association of Florida (proposed ordinance)
- Large city council member
- Law Enforcement & others to be scheduled
How Task Group 1 Approached its Work

Briefings and Discussions on Potentially Relevant Comparative Frameworks Including Cooperative Federalism Models:

- Environmental protection & enforcement
- Telecommunications
- Federal Motor Carrier
- Airport airspace protection
- Community airspace
- Local noise regulation and aviation
- (and more to come)
How Task Group 1 Approached its Work

- Conducted 4 Full Days of Meetings & 3 Conference Calls Since December 2, 2016
- in Light of Our Fact Gathering, Refined Draft Tasking Statement for Consideration by the DAC
- Submitted Draft Work Products to the DACSC for Review, Comment, Discussion and Approval
- Discussed Desire for a Public Statement
Task Group 1 Findings

- TG1 Has Been in Fact-finding and Analysis Mode, and Has not Yet Reached Substantive Findings
- For Its **Short-term** Purpose, TG1 Is Guided By Observations From the FAA About the Historical Role of the Federal Government in Regulating Airspace
- We Also Observe Concerns and Questions That Small UAS Technology Raises in Matters of Local Governance and Various Types of State and Local Legislation
Task Group 1 Findings

Tasking Statement Reviews Relevant Legal History, Including:

- 1926 declaration of exclusive federal sovereignty of the airspace
- Congressional direction to FAA to develop plans, policy and regulations
- Case law concerning preemption and governmental takings, such as the *Burbank* and *Causby* decisions
Task Group 1 Findings

- State & Local Governments Have the Authority To Exercise Their Police Powers To Promulgate & Enforce Rules of General Applicability
  - For example, property interest disputes and privacy matters (e.g., trespass, voyeurism, public nuisance) have traditionally been left up to cities, counties & states.

- UAS Proliferation Has Prompted Many State & Local Governments To Propose and Enact a Variety of Laws Regulating UAS Operations in Low-altitude Airspace
Task Group 1 Deliverables

- Tasking Statement
Task Group 1 Deliverables
(Draft Task Statement Summary)

Highlights of Tasks Ahead:

• Continued Fact Finding & Analysis
  1. State & local interest in, and responses to, UAS – Identify specific interests, assess impact & the role of partnerships; Identify possible alternative legislative responses
  2. Enforcement of federal safety and airspace rules & regulations – relative role and responsibility of state & local governments for responding to, investigating non-compliance with, and enforcing state and federal UAS-related rules and regulations
  3. Evaluation of parallel &/or complementary enforcement mechanisms
Task Group 1 Deliverables  
(Draft Task Statement Summary)

Develop Recommendations

- **Low Altitude UAS Navigable Airspace**
  1. Defining low-altitude UAS navigable airspace susceptible to state/local governmental interests
  2. Extent to which a definition of “low altitude airspace” regarding UAS operations is susceptible to allocation, or cooperative, concurrent or delegated jurisdiction among state and local governmental interests
  3. Is there a non-federal interest in operations of UAS in airspace other than “low - altitude airspace?”
Task Group 1 Deliverables
(Draft Task Statement Summary)

- Develop Recommendations
  - Low Altitude UAS Navigable Airspace
    1. Is there an analog to “minimum safe altitude” for UAS?
    2. Consider the contemporary relevance of traditional legal authorities
Task Group 1 Deliverables
(Draft Task Statement Summary)

Develop Recommendations

- Relative roles and responsibilities of the Federal, State and Local Governments
  1. Should the existing framework of federal exclusivity for regulating low-altitude UAS operations be reconsidered in light of state & local interests?
  2. If so, what modifications would better integrate important state and local governmental interests with important federal interests vis-à-vis airspace safety, efficient management and access?
  3. Roles/responsibilities for interests other than aviation safety
  4. Oversight mechanisms
Task Group 1 Deliverables
(Draft Task Statement Summary)

Develop Recommendations

• Enforcement

1. Should the relative role and responsibility of state and local governments for enforcement of any aspects of rules and regulations governing low altitude UAS operations be changed?
2. If so, what are the changes and what are the mechanisms to achieve the recommended changes?
3. Is additional data collection necessary?
Task Group 1 Deliverables
(Draft Task Statement Summary)

- Develop Recommendations
  - Education
    1. What training or education will be needed if local authorities/officials are asked to assist with, implement, or otherwise address federal statutes and regulations?
    2. Who should conduct the training to maintain consistency of implementation and enforcement?
    3. Funding needs for training of non-FAA enforcement agencies
Task Group 1 Deliverables
(Draft Task Statement Summary)

Develop Recommendations

• Technological Tools and Solutions
  1. Identify existing & possible future technologies that may be utilized to satisfy or support governmental roles and responsibilities
  2. What technology tools are undergoing R&D that may address governing concerns and interests
  3. Implementation strategies
Task Group 1 Deliverables
(Draft Task Statement Summary)

Develop Recommendations

• Local Government Operational Issues
  1. How can governmental units facilitate UAS use, and prohibit UAS interference with, manned aircraft, emergency response, etc.?  
  2. Who has the authority for issuance of approvals?  
  3. Recommendations on how FAA should respond to the emerging state and local regulations in this space  
  4. What are the roles of the FAA and state or local governments in authorizing operations in emergency situations?
Task Group 1 Time Frames

- **Near Term:** – Continue To Work Ambitiously To Formulate Recommendations On at Least First Set of Tasks By Spring 2017

- **Intermediate Term:** – Subject To the Guidance and Instruction of the DAC

- **Long Term:** – Task Group Is Prepared To Assist DAC & FAA With the Policy Implementation Phase, Subject To DAC/FAA Tasking

- **Interim:** Concept of a Public Statement
QUESTIONS, COMMENTS, DISCUSSION
Report Out of DACSC TG2
(Access to Airspace)

Co-Chairs:
Sean, Cassidy Amazon Prime Air
Robert Hughes Northrop Grumman
Purpose of Task Group 2

- Review Use Cases, Activities & Materials To Date Related To UAS Access & Integration To the NAS To Include FAA Concept of Operation Document & UAS Implementation Plan, NASA UTM, Pathfinder, RTCA Work.

- Provide Recommendations On UAS Operations/Missions Beyond Those Currently Permitted, and Define Procedures for Industry To Gain Access To the Airspace Within a Near Term (24 month) Timeframe.

- Provide Additional Recommendations On Expanded Access for UAS Operations/Missions That May Require Public/Private Infrastructure, Rulemaking, and or Other Changes That Would Extend Implementation Beyond the 24-month Timeframe.
Members

Co-Chair Cassidy, Sean           Amazon Prime Air
Co-Chair Hughes, Robert         Northrop Grumman
Program Director: Chaudhari, Claudia    RTCA Inc

Voting Members:

Ali Bahrami       AIA
Peter Cleveland    Intel
John Collura       UMass
Diana Cooper       Precision Hawk USA
Nancy Egan         3DR
James Grimsley     Univ of Oklahoma
Paul Guckian       Qualcomm
Jonathan Hammer    Noblis Inc
Rick Heinrich      Rockwell Collins
Bob Lamonde        NBAA
Ben Marcus         AirMap

Chris Martino      Helo Assoc Intl (HAI)
Paul McDuffee      Insitu
Peter McNall       General Atomics
Andrew Moore       Natl Ag Av Assoc
Mark Reed          A L P A
Jeffrey Richards   NATCA
Bill Stone         Garmin
Tim Stull          American Airlines
Andy Thurling      AeroVironment
Greg Walden        Akin Gump
Steve Wright       ATAC
Approach

- Approve Tasking Statement
- Task Decomposition/WG Assignments
  - Group Overview, then division into WG’s
  - Assignments NLT February 23 DACSC meeting
- Establish TG2 Meeting Cadence, Work Plan
  - 4WG’s with FAA representatives assigned to each WG
  - Bi-Weekly Webex
  - Monthly Meetings
- Smaller Focus Groups as Needed
- Execute…Deliver…On Time
Initial Deliverables

TG2 to Provide Recommendations for:

- Roles and Responsibilities:
  - Aircraft, remote pilot/operator, and ANSP (Air Navigation Service Provider)

- Expedited UAS Airworthiness and Operational Approvals for Near-term (Within 24 mo) UAS Missions.

- Expedited Minimum Essential Aircraft Equipage, Public/Private Infrastructure Needs, and Operational Requirements Beyond Those Currently Permitted Under 14 CFR Parts 101/107 To Include Information Flow and Interoperability Considerations.

- Use of Spectrum for Command and Non-payload Communications.
Draft Tasking Statement

Approach
- Routing: FAA (DFO) → RTCA → DAC → DACSC
- Generic Enough To Allow Growth & Flexibility
- Reflect Industry Input From DACSC

Results
- RTCA-hosted TG2 Virtual Discussions:
  - #1 Rough Draft presented
  - #2 Draft Finalized
- Ready for DAC Review and Approval
High Level Calendar
Questions?

Thank You!
FOR IMMEDIATE RELEASE:
Tuesday, January 31, 2017

*** STATEMENT ***

MAYOR LEE’S STATEMENT ON THE DRONE ADVISORY COMMITTEE MEETING

Mayor Edwin M. Lee today issued the following statement regarding the second meeting of the Drone Advisory Committee:

“As drones become part of our everyday life and new innovative uses are developed, our laws must evolve to help drones safely and efficiently integrate into the airspace over America’s local communities.

To ensure residents safety, state and local governments determine basic standards from where cars can drive and how fast, to safe locations for bike lanes. They should also be able to decide when and where it is appropriate to operate a drone that has the capability to fly into crowds, on streets, at eye-level, or even inches above the ground. Our highest priority is to ensure the safety of our communities.

Mayors across the country who are very pro-technology and innovation are seeking sensible ways to open the skies without placing an undue burden on drone operators.

Just as the FAA developed an air traffic control system to help airplanes fly safely, NASA and the FAA are working to create an Unmanned Traffic Management (UTM) system for low altitude airspace to enable safe, efficient drone operations.

This is a system that has enormous potential—but it is critical that local governments have a role in constructing it. Their data will be important for ensuring that we have a system that actually works.

I would ask that the Committee ensures that there is equal representation on its Roles & Responsibilities Task Group for local governments and mayors.

I also believe that the Committee must recognize that state and local governments have a vital role to make time, manner, and place restrictions on drones - especially if they are flying close to our streets and people below 400 feet--just as they do on cars, skateboards, and bicycles.

A one-size-fits-all approach to drone regulation won’t help the drone industry – it will hinder it.”

###
Presentation of DACSC TG3 Formation (Funding), FAA
Drone Advisory Committee

Task Group 3 – UAS Funding

Presented by: Nan Shellabarger, Executive Director, FAA Aviation Policy and Plans

Presented to: Drone Advisory Committee

Date: January 31, 2017
The Task

1. What activities and services are needed to support the safe integration of UAS operations into the NAS?
2. What funding resources are needed, and what funding mechanisms should be used?
3. How could this be implemented, as industry evolves?
4. What funding options were rejected and why?
Federal Aviation Administration

UAS Funding
January 31, 2017

FAA Funding Structure
FY 2016 ($ in M)

Aviation Excise Taxes

Airport and Airway Trust Fund
Total Fund Appropriation $14,293

Airport Improvement Program
$3,350

Facilities & Equipment
$2,855

Research, Engineering, & Development

Operations
$1,988

General Taxpayers

Total FAA Enacted FY2016 $16,281

Updated 8/15/16 based on 2016 enacted documented in FY17 President's Budget submission

Airport Improvement Program

Facilities & Equipment

Research, Engineering, & Development

Operations

General Taxpayers

Total FAA Enacted FY2016 $16,281
Things to Think About

- How much, for what, in what time frame?
- Who should pay for what?
- What kinds of mechanisms can be implemented?
- Do these set up incentives? Create unintended consequences?
- Can we reach consensus?
Good morning, everyone. It’s great to see you all again.

Let me start off by sending along Administrator Huerta’s best wishes for a productive meeting. He’s sorry that he couldn’t be here, but he’s looking forward to receiving a full report on our discussions.

He asked me to pass along his sincere thanks, once again, for taking the time out of your busy schedules to be a part of the Drone Advisory Committee.

The world looks a lot different than it did during our last meeting.

President Trump has taken office – and as with any new administration, there are a number of changes happening across the federal government and at the FAA.

So before we get to today’s business, I’d like to provide a brief update.
As you all know, Elaine Chao is expected to be confirmed this afternoon as Secretary of Transportation.

She comes to us with a wealth of experience in the public sector. She formerly served as the Deputy Secretary of Transportation under President George Herbert Walker Bush, and the Secretary of Labor under President George W. Bush.

Secretary Chao is in the process of building her team at the Department of Transportation. About 100 political appointees have or will be joining DOT in the coming weeks, and we’ll be welcoming a number of them to the FAA.

This is obviously a period of change for our agency. New administrations always mean new agendas, and new priorities.

There’s a lot we still don’t know.

What we do know, however, is that our mission contains the same priorities and that is to continue to be the safest, most efficient aerospace system in the world.

To continue meeting that mission, we need the right tools and resources.
The new Congress is going to be taking up our budget and an FAA bill this year.

We plan to play an active role in this conversation.

We’ll be working closely with Congress to ensure that any FAA reauthorization bill is one that helps build on our safety record, continues to modernize our air traffic control system, and integrates new entrants like drones into our airspace.

Fortunately, we have an impressive record of achievement we can point to – particularly when it comes to unmanned aircraft.

Our online drone registry recently celebrated its first anniversary. And in a little over a year, it has more than 700,000 registrants.

We just successfully used our No Drone Zone campaign to remind people to leave their drones at home during the Inauguration. We’ll do the same type of campaign for the upcoming Super Bowl.
And since our small unmanned aircraft rule took effect in August, more than 35,000 people have started the Remote Pilot Application process. More than 17,000 have passed the Remote Pilot Knowledge Exam.

These are important achievements. And we intend to keep building on our momentum.

For example, we’ve been hard at work figuring out the best way to allow small unmanned aircraft to fly over people under specific circumstances.

As you know, flying drones over people raises safety questions because of the risk of injury in the event of a failure.

It also raises security issues. As drone flights over people become a more common occurrence, imagine the challenge of a local police officer at a parade trying to determine which drones are properly there to photograph the festivities – and which may be operated by individuals with a more sinister purpose.
Working with our interagency partners to reconcile these challenges is taking time. Meetings conducted with industry stakeholders have also raised a number of issues.

But we’re doing all that we can to advance this effort.

And further down the line, we plan to address routine drone operations beyond the pilot’s visual line of site.

We’ll be working closely with the new Trump Administration team to make sure to get them up to speed on all we’re doing with unmanned aircraft.

We know our efforts are widely supported – thanks in large part to our focus on collaboration with industry.

That’s the importance of meetings like this one.

The Drone Advisory Committee gives stakeholders a seat at the table to make your voices heard.

And it helps us create better policies that work for a broader group of users because it helps us make sure we take into account a broader focus.
You have a unique opportunity to help shape the future of unmanned aircraft in America.

This is an exciting, burgeoning industry – and you’re considering some of its most important challenges in doing that.

The recommendations you provide will help guide the FAA’s efforts to safely and efficiently integrate drones into our National Airspace System.

It’s a big job. And as with most big jobs, figuring out how to do the work is one of the most important challenges as we tackle the early work of this committee.

Since our last meeting in September, in fact, there has been substantial progress made in building the framework for your future discussions.

You established the DAC Subcommittee, which is prioritizing the Committee’s overall efforts.

It’s being headed by Nancy Eagan from 3D Robotics and Brian Quigley from United Airlines.
You also established task groups to handle two of the DAC’s top priorities.

Task Group One is defining the roles and responsibilities of Federal, state, and local governments when it comes to regulating drone operations in low-altitude airspace.

John Eagerton from NASAO and Brendan Schulman from DJI have stepped up to lead that effort.

Task Group Two is looking at airspace access and identifying the highest-priority unmanned aircraft operations beyond those that are currently permitted.

Sean Cassidy from Amazon Prime Air and Robert Hughes from Northrop Grumman are serving as co-chairs of this group.

Both of these groups will be presenting draft task statements today. They spell out the questions that they hope to answer in the coming months.

The FAA has also asked the DAC for its advice on a third challenge and that relates to funding.
As the unmanned aircraft industry has grown, so have the demands on the FAA and our already constrained budget.

We need your recommendations on how best to pay for the services required to integrate unmanned aircraft into our airspace.

Which activities should the federal government perform? Which can be handled by industry? What’s it going to cost, and who should pay for it?

We’ll be discussing these questions and more later today. The FAA has produced a draft task statement for Task Group Three which includes background on how the agency is currently funded, as well as potential revenue streams.

I’d like to thank Mark Aitken from AUVSI and Howard Cass from American Airlines for agreeing to lead this group. We look forward to receiving your recommendations.

There’s no doubt that we’ve given this Committee a large scope of work. The issues we’re asking you to consider aren’t easy. And we’re likely to have even more questions for you as we get deeper into our integration activities.
But I can assure you that the FAA will be there with you every step of the way. We take your recommendations seriously, and we’ll be responding to all of them.

This is only the beginning of an ongoing conversation about the future of drones and their place in our airspace.

Thank you for being a part of it.