

REDAC Subcommittee on Airports

Summer Meeting July 30 -31, 2019

FAA - William J. Hughes Technical Center

Building 300 – Technical Director's Conference Room

Note Taker: Erin DeBarth

The meeting began at 12:47 p.m. Mr. Christopher Oswald (Airports Subcommittee Chair) greeted and thanked the Subcommittee members for attending. He explained that the agenda had been reformatted with less deep dives, not going into the individual research program areas (RPAs), and more overviews. Mr. Oswald stated if there were any questions about ongoing research, or if there was something a Subcommittee member would like information on that was not listed in the agenda, to please let him know.

Ms. Shelley Yak, Director, FAA William J. Hughes Technical Center, R&D Executive
Welcome and Remarks

Ms. Yak began by explaining the meeting had been streamlined and updated based upon a Research and Development (R&D) perspective. She stated the usual topics have been budget related and emerging and developing issues. Ms. Yak explained a few years ago, that there were discussions of a 50% cut in budget and she was pleased to report the budget was staying at a decent level for FY20. She credited the Subcommittee for being instrumental in the redesign of the FAA National Aviation Research Plan (NARP), and the 2017-2018 NARP was approved and published on the FAA Website. Ms. Yak explained the Landscapes will be discussed and Mr. Steve Summer will present an update on the Subcommittee input. She stated that she wanted the Subcommittee to think about where the Landscapes and Research Plan fit in the REDAC. Ms. Yak continued by informing the Subcommittee the National Aviation Research Park is open and the FAA Research Team has space in the first completed building. She informed the Subcommittee that the local ACY (Atlantic City Airport) identified itself as interested in becoming a Smart Airport, and received a grant. Ms. Yak explained Smart Technology continues at the forefront of research and this was part of a deal with the FAA and ACY when the FAA turned the airport over to private entities.

Mr. John Dermody, Airports Designated Federal Official (DFO)
HQ Office of Airports (ARP) Update

Mr. Dermody welcomed all in attendance. He explained there was a lot going on in the world of R&D. He explained that the budget was in good shape and R&D has been able to prioritize and defer tasks while focusing on the priority tasks. Mr. Dermody credited Dr. Michel Hovan, Mr. Jeff Gagnon, and Mr. Jim Patterson for assisting with the prioritization task and being flexible within their programs. Mr. Dermody cited Unmanned Aircraft Systems (UAS) and Commercial Space as being some of the hot topics for R&D. Mr. Dermody stated the budget was in good shape with half going to the Safety Program and half going to the Pavement Program. He said a big portion of funding for Pavements was going to the new National Airport Pavement Test Facility (NAPTF)

and the support contractor. Mr. Dermody stated FY20 looked to be in good shape in order to accomplish what was needed, and with the support of Dr. Hovan, Mr. Gagnon, and Mr. Patterson prioritizing tasks should keep moving along. Mr. Dermody continued speaking to Fluorinated Firefighting Foams research, stating that it had been questioned regularly about what the FAA was doing to combat this. He explained the dilemma was finding alternatives and asked if aviation was doing their part. Mr. Dermody stated the Aircraft Rescue & Fire Fighting (ARFF) project topped everything right now explaining the new building was in the construction phase. He informed the Subcommittee there will be a visit to the facility on Day Two. He stated this will help move the research forward, adding that R&D has been looking to Europe to observe what they were doing. Mr. Dermody explained an alternative was needed that must be environmentally friendly and meet safety recommendations. He stated this was started in October 2018 and he was hoping by January R&D will be able to look at testing without dispensing foam. Mr. Dermody stated there was a pressing need for legislation and this work has been performed under a congressional mandate. Mr. Oswald interjected stating this was definitely on the top of the issues due to airport findings and media attention. Mr. Oswald stated it was not just a concern of the airport industry and it was important to get good science in place and appropriately develop strategies. Mr. Oswald added it was important to communicate and provide realistic expectations of the research. He explained there were many people in industry who would be willing to help. A Subcommittee member asked if the FAA was tracking State bills, explaining some bills go too far and will be difficult to comply with. Mr. Dermody stated the FAA was aware, but not all bills come to the FAA. Mr. Dermody informed the Subcommittee that FAA HQ had two vacancies to fill. He mentioned that Greg Kline and Doug Johnson were retiring. Mr. Dermody continued highlighting the Safety Database - Runway Incursion Mitigation work that Ms. Lauren Vitagliano has done. He explained the program had evolved and was three years old and puts out substantial benefits. Mr. Dermody cited the most recent stats which were 435 runway incursions prior to the mitigation being implemented, and since then, there have been only 30 occurrences. Mr. Dermody stated as issues popped up they were being added to the list. The Subcommittee asked if all the information was available on the Airports website. Mr. Dermody confirmed that it was. Mr. Dermody spoke to UAS and praised Mr. Patterson and his team for the work that has been performed. He stated he believed this work will lead to specifications on using drones at airports. Mr. Dermody explained counter UAS was right on the doorstep of R&D and FAA was very focused on this. He stated the R&D Department was working very closely with the FBI and DoD, and there were intense discussions on authority and who would test and exercise what. Mr. Dermody explained the first step was to test at ACY and move to five different airport locations. He stated airports was where R&D will have a significant role, but there needed to be discussions on what roles everyone will play, and there will be a lot of collaboration with different offices. The Subcommittee asked if there had been any issues working with ATO. Mr. Patterson explained that the plan needed to be very scripted and if it is then it should usually be well received.

Dr. Michel Hovan, FAA WJHTC Airports Division Manager

ATR Update

Dr. Hovan informed the Subcommittee that R&D signed an agreement with Iowa State University and the FAA continued to push agencies to work together. He stated FY19 looked good and R&D still has money that needs to be allocated by August 29, 2019. Dr. Hovan explained R&D was working with universities and grants and if the funding does not get allocated by August 29, it will impact the research. Mr. Oswald interjected asking what can be done. Dr. Hovan stated funding

issues needed to be resolved in a timely manner. Mr. Murphy Flynn interjected that the new Pavement Lab approval was still with the Chief Financial Officer (CFO) and there were strict timelines for which the package submitted would be accepted. He expressed his confidence but it was a lengthy process. Mr. Hovan noted there were four vacancies, two in each Pavement and Safety. He explained in FY21 he would like to dedicate one vacancy to UAS and another for the Pavement Lab Manager. Mr. Hovan stated there were positive things to report for Aircraft Rescue and Fire Fighting (ARFF), Unmanned Aircraft Systems (UAS), Noise, and Aircraft Braking Friction. A Subcommittee member interjected that they would like to commend Mr. Gagnon and Dr. Hovan on the great work that was done with the Department of Federal Highway and R&D. It was explained there was a meeting where half of the day was spent preparing research notes and discussions to ensure there was not a duplication of efforts.

Mr. Eric Neiderman, Manager, FAA WJHTC Research and Development
Smart Airports

Mr. Neiderman stated ACY was a designated smart airport test bed, and starting November 18, 2019 testing of technologies will begin. He stated there was a \$930K grant that was available, and ACY won. Mr. Neiderman explained ACY will get \$250k over the next three years for research.

Mr. Steven Summer, Branch Manager, Research Portfolio Branch
Update on the Technical Center Research Landscape

Mr. Summer began by stating that input from the Subcommittee helped the development of the FAA Landscape. He discussed the definition of R&D Landscape the planning phases, and the use of the Subcommittee's input. Mr. Summer explained the Subcommittee was given a list of 25 research drivers and asked the Subcommittee to review what was missing, identify the impact, and list what other agencies were doing similar work. He stated with the Subcommittee's help, the FAA was able to validate the drivers, develop a timeframe of maturity, and identify drivers for future reference. Mr. Summer reviewed the three categories of drivers and explained next steps. He noted that the R&D landscape document would be updated regularly for consistency on latest industry needs. Ms. Yak interjected that the FAA was trying to embed how prioritization was done and how to keep it updated and fresh. A Subcommittee member asked Ms. Yak if the document can be taken and distributed to industry for feedback. Ms. Yak responded in agreement that this approach was permissible. Mr. Oswald mentioned that the Subcommittee needed to define how the document should be used and to focus discussions on research areas, prioritize and look ahead two to three years to make the best of funding. He explained there needed to be a definition of the Subcommittee boundaries and how the Subcommittee can make use of this to most effectively get information back to the FAA.

Mr. Jim Patterson, Airport Safety R&D Section Manager
Review of REDAC Recommendations

Mr. Patterson provided an overview of the REDAC recommendations. He informed the Subcommittee that there were recommendations from spring and fall 2018 pending. The Subcommittee reviewed all open recommendations.

Overview of Safety RPAs

Mr. Patterson reviewed the FY19 Projects and Research requests. He highlighted the five new requests, citing the Solar Project. Mr. Patterson stated there was a lot more technology than there was ten years ago. He explained Mr. Joe Breen was the lead on that project and he was working with Cape May Airport. Mr. Patterson presented the Runway Incursion Mitigation (RIM) video and reviewed major accomplishments to include the Fire Test Building and 12 new report publications since last REDAC. Mr. Patterson informed the Subcommittee that all reports are on the website. Dr. Hovan informed the Subcommittee that the website was revised and Mr. Ryan Rutter has been working on publishing documentation from 1999 to present.

Mr. Joseph Breen General Manager, Airport Safety Aircraft Braking Friction Program Update

Dr. Hovan provided an overview of the program and explained there was a Technical Working Group Meeting at MIT and the group developed a new approach to the research. Mr. Breen began his presentation by giving a brief history of the program which included the FAA partners in research and the shortcomings of the program. He explained at the recommendation of the Subcommittee, a Technical Working Group was formed. Mr. Breen stated the Working Group has compiled a white paper and it was presented to all Subcommittees for the spring and fall 2018 meetings. Mr. Breen distributed a modified version of the white paper for the Subcommittee to review. Dr. Hovan indicated the goal was to improve or refine information used by airports to report conditions. He explained Take Off and Landing Performance Assessment (TALPA) was an effective way of organizing the data from aircraft and airports and assessing runway conditions. Dr. Hovan stated the Working Group recommended data mining to look at large scale data analysis and compare that data or merge with what was out there to come up with a model to integrate or improve. Dr. Hovan stated he believes this is a valid approach. He explained Office of Commercial Space (AST) is ready to share the data they have for a cost, and Airbus will not give much. Dr. Hovan stated if AST cooperated, R&D could get 4 million data points between 2017 and 2018 (2 million/year). Dr. Hovan stated the verification of the data would be controlled testing combined with weather data. Mr. Breen gave a history of the Trapezoidal Groove program and explained the cost was the deciding factor in not continuing the research at ACY. He explained R&D has been working with Office of Airports to come up with a revised research request. Mr. Breen stated performing Full Depth FAA Standard Groove Testing would require testing to be done at other locations. He informed the Subcommittee that Denver International Airport would be an ideal test location. Dr. Hovan asked the Subcommittee to look at the white paper and provide feedback. Mr. Oswald interjected that the white paper has no mention of how the 727 will be used. Mr. Oswald asked to have the paper revised to give details on the testing that will be performed with the 727. Mr. Dermody explained that he believed Trapezoidal Groove Testing was a valid pathway to get what was needed as well as using what was already out there. Mr. Dermody stated the paper can be revised to include the 727 testing.

Mr. Jeff Gagnon Airport pavement R&D Section Manager
Overview of Pavement RPA's

Mr. Gagnon began by discussing the outline of the presentation. He cited the International Agreements, R&D was working on were still under legal review. Mr. Gagnon informed the Subcommittee of a conference that he attended in Greece and presented FAA PAVEAIR (FAA Pavement Management System for Airports). Mr. Gagnon informed the Subcommittee the new Pavement Lab was at 60% lab design and anticipated to be at 90% by November 2019. He explained that if funding was approved in August 2019, construction would begin in spring of 2020. Mr. Gagnon cited that the Reauthorization Act of 2018 required use of geosynthetic materials. He stated the CC9 (Construction Cycle 9) project in progress has placed fabric within the material and he hoped the results would become available next year. Mr. Gagnon explained R&D used both fabric and a geogrid in the test beds. These were the first test beds to use these materials. Mr. Gagnon highlighted Dr. Navneet Garg on his Practitioners Award that he received at the American Society of Civil Engineers (ASCE) Conference in Chicago. Mr. Gagnon presented new technologies to include Sinusoidal Designs, Smart Rocks, and Wireless Sensors. He explained Charlotte Airport was using 1000 ft. of sinusoidal joint in the busiest runway they have. He stated the Smart Rocks measure pressure and the movement can be tracked, and they were about the size of 1 inch aggregate, similar to what was being used in CC9. Mr. Gagnon explained the Wireless Gauges came from a grant with Michigan State. Dr. Garg stated they were about \$800/ gauge, but if they go commercial the cost will be around \$10/gauge. Mr. Gagnon explained Michigan had already installed some in France, and had nowhere to install them in the US, so R&D gave them the Technical Center location. Mr. Gagnon informed the Subcommittee that FAA Rigid and Flexible Iterative Elastic Layered Design (FAARFIELD) 2.0 was delivered last week, and over time, it will replace the Aircraft Classification Number – Pavement Classification Number (ACN/PCN) currently used.

10 Year Pavement R & D Plan

Mr. Gagnon presented the plan overview. He explained the plan included Airport Pavement Design, Airport Pavement Materials, and Pavement Evaluation. Mr. Gagnon stated he added a list of tables and an introduction on how this fit in the National Aviation Research Plan (NARP), Office of the Secretary of Transportation (OST), Department of Transportation (DOT), and FAA along with cost tables that will be finalized by next FY. Mr. Gagnon stated he was hoping to have the draft completed by August 2019, and the final by September 2019.

Day One adjourned 5:05 p.m.

Day Two

Meeting commenced 8:45a.m.

Mr. Christopher Oswald, Airports Subcommittee Chair

Mr. Oswald asked the Subcommittee to think about how to turn future needs into projects, and what value they may have. Mr. Dermody commented that recommendations are always welcome. He explained they will look at a recommendation to see how it aligns to what exists in the queue and write a research request. Mr. Oswald asked if the discussion of the Landscape Report with the top three to five priorities helped bring forth a recommendation. Mr. Dermody stated that it depended upon the alignment with the research being done, but he welcomed input.

Mr. Isidore Venetos

Cybersecurity R & D Plan Update

Mr. Venetos began his presentation by giving the project background, to include the need for cybersecurity on the aviation side. He explained there was a need for public and private partnership in order to open communication channels. Mr. Venetos stated the research element was not just with aircraft, but that airports needed to be included as well. He noted that this was a solution-based approach, not a regulatory body. Mr. Venetos gave an overview of the Cyber Safety CAT Approach to include the vision, mission, and the goal. He explained the goal was to reduce risk with the aviation community with a deliverable to develop best practices, harmonize with international partners, and to work to understand the cyber risk. Mr. Venetos stated the Aviation Safety Framework was already out there, and this was not to dismantle or reinvent the wheel. He stated the plan was to integrate into existing aviation safety controls. Mr. Venetos presented a list of possible private sector partners to the research and he stated he was hopeful to have this ready to go by 2021. Mr. Venetos presented the Operational Construct to include analysis, implementation of changes needed in industry, and reasons for partnership for more efficiency and better opportunity to work “end to end”. He explained the goal was an increased layer of protection across the aviation ecosystem. Mr. Venetos presented the program summary to include the contacts, reports to be made available, and possible partners. He reiterated that this was being approached as a non-regulatory set, and it will only become regulatory if government feels the need for it, but it was not the key factor. Mr. Oswald noted the deliverable would be the best option depending on the risk. Mr. Venetos stated there was still a need to work out who would get the information. He informed the Subcommittee he would distribute the Concept Document, but he is open to ideas on how to share information. Mr. Dermody asked if industry already had something in place without having to go into a regulatory role. A Subcommittee member suggested getting in contact with the Israeli Airport Security, explaining Cyber Security was taking on a completely new level over there and it may be beneficial to look into. Mr. Oswald stated it might be a good idea to revise the Concept of Operation document with the Subcommittee and to see where it can fit in. He stated there may be place for this in another subgroup, or there may be a need to build off as a supplement to areas where there was not funding. Mr. Oswald stated he observed a potential in terminal disruption, smart escalators, email, etc., but was unsure on how to proceed. Mr. Oswald stated the Subcommittee will review the concept document and provide recommendations on how to engage the airport sector more effectively.

The Subcommittee decided the next meeting is to be held:

March 3-4, 2020, same location

Dr. Hovan asked the Subcommittee if they agree to this meeting format. The Subcommittee agrees.

August 25-26, 2020, same location

Membership Review and Discussion

Mr. Oswald informed the Subcommittee members that resumes were needed to formalize their memberships. He stated that he would like a proposal to get someone from the Philadelphia International Airport for logistical reasons, National Airport Pavement Association (NAPA) as well as possibly someone with a background in wildlife on the Subcommittee

Ms. Roundtree-Coleman provided an overview of the membership process as it pertained to existing, new and retiring REDAC members. It was noted that it was a two-year membership rotation with an annual review process. Ms. Roundtree-Coleman stated that membership proposals are taken into consideration by the REDAC Chair and REDAC Executive Director which is then reviewed by the Ethics Organization and Legal Counsel. She also added that there were new guideline rules in effect as such:

1. If the meeting is to be held at a non-FAA-DOT location, there must be a request for approval submitted with justification in advance.
2. A Subcommittee member is responsible for taking notes/minutes at the meetings. If outside support is requested, there must be justification submitted for approval in advance.

Day Two Meeting adjourned 12:10 p.m.

Actions

- Cyber Security Concept Plan – review and provide comments. Identify key contacts that could assist, as well as airport recommendations.
- Research Landscape – possible embellishments to some landscape items. Mapping to RPA level. Within a week coordinate with Dr. Hovan on what is needed for feedback and distribute between now and next meeting.

Review of Recommendations

Spring 2017 – still open pending approval

Spring 2018 – tentatively approved

Fall 2018 – tentatively approved

Research, Engineering and Development Advisory Committee
PPT Briefing to Sub-committee on Airports: July 30-31, 2019
Technical Center Director's Conference Room

Day 1: July 30, 2019

Time	Presenter(s)	Topic
12:30 pm	Christopher Oswald <i>ACI-NA, Subcommittee Chairperson</i>	Introduction
12:45 pm	Shelley Yak <i>Director, FAA Technical Center</i>	Welcome and Remarks
1:00 pm	Shelley Yak/Steve Summer	Update on the Technical Center Research Landscape
1:30 pm	John Dermody <i>Director</i> <i>FAA Office of Airports Safety and Standards</i>	HQ ARP Update
1:45 pm	Michel Hovan <i>Manager, Airports Technology Research Branch</i>	ATR Update
2:00 pm	Subcommittee Members and FAA	Review of REDAC Recommendations
2:30 pm	Jim Patterson <i>Airport Safety R&D Section Manager</i>	Overview of Safety RPA's New Research Requests 19 (Safety and Environment)
2:45 pm	Break	
3:00 pm	Michel Hovan/Joe Breen	Aircraft Braking Friction Program, update Runway Grooving Program, update
3:45 pm	Jeff Gagnon <i>Airport pavement R&D Section Manager</i>	Overview of pavement RPA's
4:00 pm	Jeff Gagnon	10 year pavement R&D Plan Presentation of main elements
4:30 pm	Subcommittee Members and FAA	Wrap-up Day 1
5:00 pm	Adjourn	

Day 2: July 31, 2019

Time	Presenter(s)	Topic
8:30 am	Subcommittee Members and FAA	IOU's from Day 1
8:45 am	Isidore Venetos	Cybersecurity R&D plan Update
9:00 am		Visit to the new ARRF Research Facility
10:30 am	Break	
10:45 am	Subcommittee Members and FAA	Membership review and discussions
11:15 am	Subcommittee Members	FAA Recommendations
12:00 am	Adjourn	

Airports Subcommittee Summer/Fall 2019

July 30, 2019

July 31, 2019

Name	Affiliation	Name	Affiliation
Rich Speir	ARA	Erin DeBarth	GDIT
Lauren Vitagliano	FAA	John McGrath	GDIT
Mike DiPilato	FAA	Holly Cyrus	FAA
Joe Breen	FAA	Tong Vu	FAA
Erin DeBarth	GDIT	John Barkowski	AAAE
John McGrath	GDT	Frank F.	Frank F., LLC
Chris Seher	ARA	Sarah Hubbard	Purdue
Steve Summer	FAA	Scott Marsh	PANYNJ
Murphy Lynn	FAA	Shailesh Gongal	MASSPORT
Jonathan Torres	FAA	Chris Oswald	ACI-NA
Wilfredo Villafane	FAA	Al Pollard	Martin State
Ryan Rutter	FAA	Jeff Gagnon	FAA
David R. Brill	FAA	Jim Paterson	FAA
Qingge Jia	FAA	Jim Mack	CEMEX
Navneet Garg	FAA	Isidore Venetos	FAA (Phone)
Hossein Eghbali	FAA	Dan Deissner	Boeing (Phone)
Jaime Figueroa	FAA	Matt Griffin	ACC (Phone)
Shamir Short	Gemini/FAA	Chinita Roundtree-Coleman	FAA
Holly Cyrus	FAA		
Shailesh G.	MASSPORT		
Matt Griffin	ACC		
Frank F.	Frank F. LLC		
Jeff S.	ALPA		
Justin Barkowski	AAAE		
Sarah H.	Purdue		
Al Pollard	Martin State		
Jim Patterson	FAA		
Jeff Gagnon	FAA		
Jim Mack	CEMEX		
Evanigio Costa	Boeing		
Gary L. Mitchell	ACPA		
Shelley Yak	FAA		
Michel Hovan	FAA		
Chris Oswald	ACI-NA		
Angela Campbell	FAA		
Keith Bagot	FAA		
Scott M.	ARA		
Chinita Roundtree-Coleman	FAA		